

Predatory Pricing: Competing Economic Theories and the Evolution of Legal Standards

Joseph F. Brodley

George A. Hay

Follow this and additional works at: <http://scholarship.law.cornell.edu/clr>

 Part of the [Law Commons](#)

Recommended Citation

Joseph F. Brodley and George A. Hay, *Predatory Pricing: Competing Economic Theories and the Evolution of Legal Standards*, 66 Cornell L. Rev. 738 (1981)
Available at: <http://scholarship.law.cornell.edu/clr/vol66/iss4/3>

This Article is brought to you for free and open access by the Journals at Scholarship@Cornell Law: A Digital Repository. It has been accepted for inclusion in Cornell Law Review by an authorized administrator of Scholarship@Cornell Law: A Digital Repository. For more information, please contact jmp8@cornell.edu.

PREDATORY PRICING: COMPETING ECONOMIC THEORIES AND THE EVOLUTION OF LEGAL STANDARDS

Joseph F. Brodley† and George A. Hay††

TABLE OF CONTENTS

INTRODUCTION	740
I. ECONOMIC THEORIES OF PREDATORY PRICING	741
A. <i>The Logic of Predation</i>	741
1. <i>Classical Predation</i>	741
2. <i>Amendments to the Classical View</i>	742
B. <i>Economic Models Basic to Predatory Pricing Analysis</i>	743
1. <i>The Linear Cost Model</i>	743
2. <i>Non-Linear Cost Models</i>	746
3. <i>The Areeda and Turner Analysis of the Non-Linear Cost Model</i>	747
a. <i>Strong Demand</i>	749
b. <i>Weak Demand</i>	750
C. <i>Theories and Proposed Rules for Predatory Pricing: The Short Run Marginal Cost Approach</i>	751
1. <i>The Areeda-Turner Rule</i>	751
2. <i>Economic Critique of the Areeda-Turner Rule</i>	754
a. <i>Summary</i>	754
b. <i>A Basic Objection to the Marginal Cost Standard</i>	754
c. <i>Marginal Cost Rule Frustrated by Short Run Out- put Expansion</i>	755
d. <i>Marginal Cost Rule Frustrated by Strategic Long Run Capacity Choices</i>	755
e. <i>The Essence of Predatory Behavior and the General Insufficiency of Cost-Based Standards</i>	756
3. <i>Areeda and Turner Rebuttal</i>	757

† Professor of Law, Boston University.

†† Professor of Law and Economics, Cornell University.

Copyright © 1981 by Joseph F. Brodley and George A. Hay.

The authors are indebted to James A. Henderson, William Page, Richard M. Pearson, and Robert Reynolds for helpful comments, and to Charles J. Domestico, a student at Boston University Law School, for research assistance.

D. <i>Alternative Long Run Pricing Rules</i>	757
1. <i>Essentials of Long Run Cost Analysis</i>	757
2. <i>Proposed Long Run Pricing Rules</i>	761
a. <i>Cost-Based Rules</i>	761
<i>The Posner Rule</i>	761
<i>The Joskow-Klevorick Rule</i>	762
b. <i>Non-cost-Based Rules</i>	762
<i>The Williamson Rule</i>	762
<i>The Baumol Rule</i>	763
c. <i>Rule-of-Reason Approach</i>	764
11. <i>JUDICIAL APPLICATIONS OF ECONOMIC PREDATORY PRICING THEORIES</i>	765
A. <i>Basic Legal Standards</i>	765
1. <i>Background: The Pre-1975 Standard</i>	765
2. <i>The Current Legal Standards</i>	767
a. <i>Judicial Reservations</i>	767
b. <i>Three Alternative Legal Approaches</i>	769
c. <i>Connecting Economic Theories to Legal Standards</i>	770
B. <i>Application of Economic Theories</i>	772
1. <i>CASE 1: Dominant Firm Pricing with Excess Capacity</i>	773
a. <i>Facts</i>	773
b. <i>Judicial Ruling</i>	773
c. <i>Applying Economic Theories</i>	774
<i>The Areeda-Turner Rule</i>	774
<i>The Posner Rule</i>	775
<i>The Baumol Rule</i>	776
<i>The Joskow-Klevorick Rule</i>	777
<i>The Scherer Rule</i>	778
d. <i>Summary</i>	779
2. <i>CASE 2: Dominant Firm Pricing Under Sustained Competition</i>	780
a. <i>Facts</i>	780
b. <i>Judicial Ruling</i>	781
c. <i>Applying Economic Theories</i>	782
<i>Possible Violation of the Areeda-Turner Marginal Cost Rule</i>	783
<i>Possible Violations Based on Improper Calculation of Costs</i>	784
<i>Attacking the Dominant Firm's Pricing as Unfair</i>	786
d. <i>Summary</i>	788
C. <i>Future Trends and Developments</i>	789
1. <i>Economic Theories</i>	789
2. <i>Judicial Applications</i>	791

III. CONCLUDING REFLECTIONS ON THE PREDATORY PRICING EXPERIENCE AND THE JUDICIAL USE OF ECONOMIC THEORY	792
APPENDIX A: THE SCHERER MODEL	795
APPENDIX B: THE WILLIAMSON MODEL	800

INTRODUCTION

Recent years have witnessed a virtual explosion in the legal and economic literature dealing with predatory pricing. Equally dramatic has been the swift adoption by several courts of policy conclusions derived from this literature—a development that is startling, given the complexity and volume of the literature and the lack of consensus among legal and economic scholars. The result has been to raise an acute problem for lawyers and judges who must assess the validity and applicability of competing economic models, mold stubborn and unruly facts to fit abstract economic theories, translate economic theories into legal doctrines, and resolve puzzling cost accounting issues. The predatory pricing development also raises more fundamental questions. An emerging but unsettled economic theory has rapidly and pervasively transformed an entire body of law, and within the briefest period of time. The predatory pricing experience contains important lessons for the careful observer on the uses of economic theory in the formation of legal policy.

This Article attempts to cut a path through the maze of literature and theories concerning predatory pricing. Both practical and theoretical considerations animate this study. On the practical level, the Article examines the application of the differing economic theories of predatory pricing, enabling the reader to utilize them in legal analysis and argumentation and to critically assess future developments. On the more theoretical level, the discussion of the predatory pricing development provides a vivid case study of the issues that confront courts when they attempt to base legal policy on unsettled economic theory. Part I examines the predatory pricing development in terms of economic theory, viewing that theory as objectively as possible. Part II explores the meaning of the differing theories of predation in pragmatic application to specific facts in judicial proceedings, followed by a more general discussion in Part III of the issues that confront courts when they use emerging economic theories as the foundation for legal policy.

I

ECONOMIC THEORIES OF PREDATORY PRICING

A. *The Logic of Predation*1. *Classical Predation*

Although it is not explicitly defined in the antitrust laws, predation is generally associated with business practices that would not otherwise enhance profits but which are utilized to enlarge the predator's market share with the expectation that this will lead to a long run gain in profits.¹ Perhaps the most common example of predation, at least as measured by the frequency of judicial consideration, involves predatory pricing practices.² The classical view of predatory pricing behavior is relatively simple: a dominant firm sells below cost to eliminate rivals and subsequently earns a monopoly profit. The paradigm example involved the Standard Oil Trust, which allegedly cut prices in selected markets to eliminate its small competitors.³

Economists no longer accept the simple classical theory because of fundamental flaws in its logic. They point out that predation is more costly to the dominant firm, with its higher volume of sales, than it is to a smaller rival because the cost of predation equals the loss per sale multiplied by the number of units sold. In addition, even if a dominant firm with greater resources were to succeed in eliminating a smaller rival, predation would not produce a monopoly profit unless new entry into the industry could be barred. The previous market entry of the excluded rival suggests, however, that barriers are not insurmountable.⁴

Empirical evidence, originating with a study of the trial record from the 1911 *Standard Oil* case,⁵ also suggested that preda-

¹ See F. SCHERER, *INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE* 335-36 (2d ed. 1980). Predation may violate several distinct antitrust statutes. See notes 34-35 and accompanying text *infra*.

² Predation may also arise when a dominant firm alters the design of its product in an effort to provide a competitive edge in other markets for accessory goods, or when a dominant firm utilizes predatory promotional activities to expand its market share by eliminating or discouraging competitors. See, e.g., *Berkey Photo, Inc. v. Eastman Kodak Co.*, 603 F.2d 263 (2d Cir. 1979), *cert. denied*, 444 U.S. 1093 (1980).

³ See *Standard Oil Co. v. United States*, 221 U.S. 1 (1911); note 6 and accompanying text *infra*.

⁴ Indeed, the excluded firm's assets are presumably available either for the dominant firm or its successor to resume production.

⁵ *Standard Oil Co. v. United States*, 221 U.S. 1 (1911).

tion was rare.⁶ Although the accuracy of conclusions gleaned from a data base limited to the trial records and reported decisions in a small number of cases remains open to question,⁷ economists nevertheless agree that the classical view of predatory pricing, in its general form, is, at the very least, incomplete.

2. *Amendments to the Classical View*

Predatory pricing becomes plausible economic behavior only when one or more special assumptions are added to the simple view of classical predation. Because these assumptions underlie several of the formal models presented below and are recurring general themes in predatory pricing discussions, they are introduced at this point with minimum comment.

First, predatory pricing may be a profitable long run strategy if entry barriers prohibit new firms from entering the industry and the productive assets of existing firms are highly specialized. Thus, if a dominant firm holds a significant cost advantage over potential new rivals, and if the assets of existing rival firms, once retired, cannot be recommitted to the same market, the dominant firm has an incentive to engage in predatory pricing even though it will sustain greater short term losses.⁸ Under these conditions, predatory pricing theoretically could lead to long run profit maximization.⁹

Second, the logic of predation is strengthened by incorporating strategic considerations. A dominant firm might profit by eliminating one relatively small firm from a market or product line if that harsh example teaches its other competitors a lesson. In strategic terms, the dominant firm will seek to establish a credible threat to pursue the same policy either within this market or in other markets when entry or other undesired behavior occurs. The primary prerequisite for the success of such strategic interac-

⁶ See McGee, *Predatory Price Cutting: The Standard Oil (N.J.) Case*, 1 J.L. & ECON. 137, 168 (1958). See also Elzinga, *Predatory Pricing: The Case of the Gunpowder Trust*, 13 J.L. & ECON. 223 (1970). The classical view of predation is summarized and critiqued in R. BORK, *THE ANTITRUST PARADOX* 144-48 (1978), and McGee, *Predatory Pricing Revisited*, 23 J.L. & ECON. 289 (1980).

⁷ See F. SCHERER, *supra* note 1, at 336-37. See generally Yamey, *Predatory Price Cutting: Notes and Comments*, 15 J.L. & ECON. 129 (1972).

⁸ F. SCHERER, *supra* note 1, at 338.

⁹ Predation is also a more plausible business strategy when the dominant firm possesses a cost advantage over its existing rivals. The dominant firm can more palatably sustain predatory pricing when it is capable of eliminating rivals without incurring out-of-pocket losses, although the effective cost is unchanged in that a firm with cost advantages forgoes the opportunity for greater short run profits when it engages in predatory price cutting.

tion is good information, *i.e.*, communicating the unfortunate fate of one unsuccessful entrant to other possible entrants.¹⁰ If other entrants are aware of this threat, the return from predation, spread across many markets and extended over time, could amply exceed the losses sustained in the demonstration effect market.¹¹

B. *Economic Models Basic to Predatory Pricing Analysis*

Post-1975 predatory pricing literature, departing from earlier writing on the subject, explicitly utilizes economic models and diagrams. The advantage of this presentation method is that it makes assumptions explicit and forces a rigor of analysis that words alone rarely achieve. On the other hand, it can create formidable barriers for the reader not versed in the language of diagrammatic analysis. The following prologue is designed to assist the reader in mastering this new approach. This subsection analyzes the two basic diagrammatic models—linear and non-linear. These models, along with several more complex models discussed in the Appendices, are used throughout the Article to explain current theories of predatory pricing and the proposed rules for judicial decisionmaking.

1. *The Linear Cost Model*

Because the linear cost model is the simplest, it is, whenever adequate, the preferable model for the analysis of cost-based legal rules. The model assumes constant marginal costs, no fixed costs, and, therefore, that marginal costs equal average costs.¹² Thus, it is easy to determine whether a price is above or below cost. Figure 1 illustrates a model based upon these assumptions relevant to an

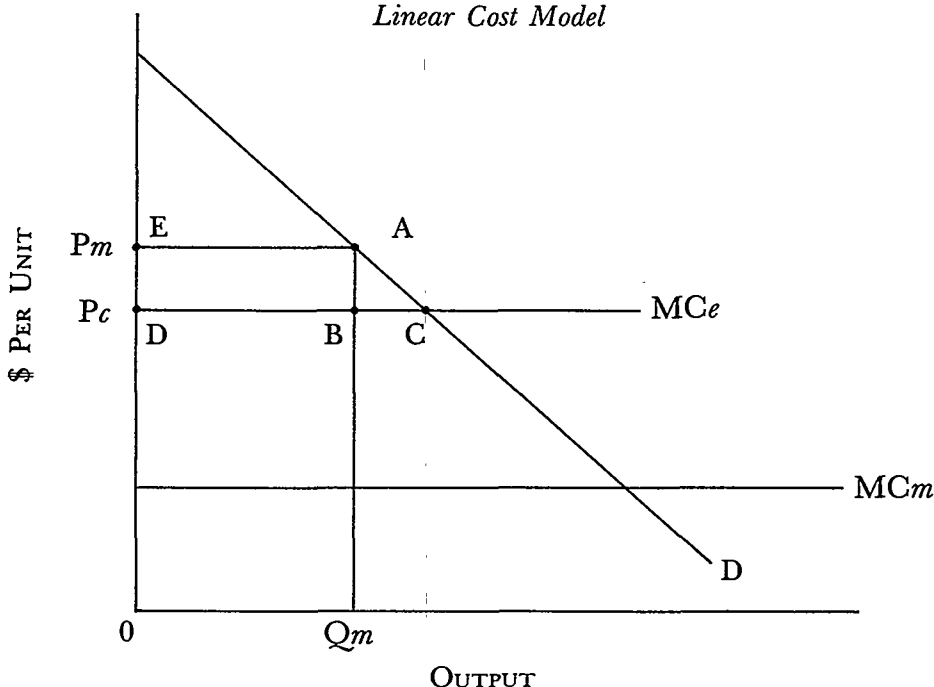
¹⁰ It is assumed that good information, but not necessarily perfect information, is available. If perfect information were available, the strategy would fail because possible entrants would recognize the bluff. See McGee, 23 J.L. & ECON., *supra* note 6, at 299-300.

¹¹ See R. POSNER, ANTITRUST LAW: AN ECONOMIC PERSPECTIVE 186 (1976); F. SCHERER, *supra* note 1, at 338-49. See generally 2 A. NEVINS, STUDY IN POWER: JOHN D. ROCKEFELLER 61-69 (1953) (price-cutting used by Standard Oil Trust primarily to inhibit competitors rather than force them out of business).

¹² Marginal costs are the additional costs incurred to produce one more unit of output. Constant marginal cost exists when total cost changes by a constant amount for each unit that output is increased or decreased. Fixed costs (*e.g.*, overhead) are costs incurred in each time period independent of the rate of production. The model assumes no recurring fixed costs and thus, when marginal cost is constant, average cost (the sum of fixed and variable costs divided by the quantity of output) is equivalent to marginal cost.

It may be necessary to assume small but nontrivial one time start-up costs so that unsuccessful entry efforts are not completely costless. These start-up costs, however, need not create any significant scale economies.

FIGURE 1

Linear Cost Model

example of predatory pricing. The entrant's costs (both marginal and average)¹³ are depicted by the line MC_e and the dominant firm's costs by the line MC_m . P_m is the monopoly price and P_c is the price at which the entrant breaks even (*i.e.*, the entrant's competitive price).

If it is assumed, contrary to Figure 1, that the entrant's costs equalled the dominant firm's cost ($MC_e = MC_m$), then the entrant could easily enter the market and the dominant firm could eliminate the entrant only by selling below its own costs (MC_m). Figure 1, however, presents the more interesting case. The entrant's costs exceed the dominant firm's costs (MC_e exceeds MC_m), but the entrant's costs are nevertheless below the dominant firm's monopoly price (MC_e is less than P_m). Because of its lower costs, the dominant firm may be able to eliminate the entrant if it is permitted to reduce its price (P_m) to a level below the entrant's costs but above its own costs. But suppose that after the entrant is eliminated the dominant firm then reinstitutes the monopoly price.

¹³ Note that in this model, average costs equal marginal costs. See note 12 *supra*. The same applies to the dominant firm's costs.

As the amended classical theory suggests, the restored monopoly price will be short-lived in the absence of high entry barriers because new firms, attracted by the monopoly price, will enter the market and force the price back to competitive levels. Assume, however, that entry barriers are high¹⁴ or that the elimination of a single entrant will deter others. With its lower costs, the monopolist can reduce its price without incurring losses. The higher-cost entrant, foreseeing the prospect of indefinite losses, withdraws, permitting the monopolist to raise its price back to P_m and hold it there indefinitely because other firms are unable to surmount the high entry barriers. The behavior of the monopolist in this case may be socially undesirable even though it does not eliminate a more efficient—or even an equally efficient—competitor because monopoly conditions have been restored. Although the monopolist produces at lower cost than the entrant, the monopolist's subsequent output restriction produces a loss in economic welfare that may outweigh the saving from the monopolist's lower cost of production. The reason for this is that the monopolist *previously* supplied part of the market at lower cost before it obtained the monopoly position. The monopolist now serves the entire market, but the cost savings produced by its greater productive efficiency affects only the portion of the market previously supplied by the entrant, which is then measured against the welfare impact of the price increase levied on the entire market.¹⁵

¹⁴ This particular entrant might have possessed special technological knowledge or customer connections that are unavailable to other would-be entrants.

¹⁵ Figure 1 readily illustrates these social welfare implications. The social (or "dead-weight") loss from monopoly is the loss of consumer benefit from the diminished output (illustrated by the triangle ABC). Although this is offset by the monopolist's greater efficiency, *the efficiency gain is realized only over the smaller part of the productive output supplied by the entrant that is now supplied by the monopolist*. Under the plausible assumption that the entrant supplies only a relatively minor share of the market, a net social loss remains. Cf. Williamson, *Economies as an Antitrust Defense Revisited*, 125 U. PA. L. REV. 699, 709 (1977) (monopoly created by merger produces net allocative efficiency loss if cost saving from merger is less than net price increase). The transfer of revenue to the monopolist in the amount of rectangle ABDE is also counted as a social loss by some economists, thus increasing the total social loss. For an argument that the efficiency gain will seldom offset the welfare loss from monopoly pricing (assuming that after predation, the monopolist would charge the pure monopoly price), see R. POSNER & F. EASTERBROOK, *ANTITRUST: CASES, ECONOMIC NOTES AND OTHER MATERIALS* 920-21 & n.* (2d ed 1981).

This dilemma becomes more acute when the concept of learning-by-doing is introduced. This concept implies that a new entrant is inevitably less efficient in its early development stages. As the entrant accumulates more experience, however, its costs may decrease until at some point it becomes equally efficient (or even more efficient) than the monopolist. On the other hand, the entrant's financial support may diminish if the dominant firm can create sufficient short run losses before the entrant accumulates the experi-

The simple linear cost model thus illustrates the basic logic of cost-based rules. The model also demonstrates, however, that even an inefficient entrant promotes competition when the alternative is a single firm monopoly with blockaded entry. Several courts have acted as if they understood this insight from the linear model, stating in dicta that price reductions below the short run monopoly price are unlawful when entry barriers are extremely high.¹⁶ Despite the unrealism of its cost assumptions, the linear cost model is adequate for legal analysis whenever price is below (or above) all relevant costs, marginal or average. The model's failure to distinguish between the various types of cost is unimportant; indeed, this omission is desirable because it simplifies the analysis.¹⁷

2. Non-Linear Cost Models

The simplicity of the linear cost model is inappropriate under recent theories of predatory pricing—most particularly the Areeda and Turner analysis¹⁸—which use cost functions differing from those of the linear cost model. Indeed, it is not possible to understand either the economics or the legal application of these more complex theories without recourse to the non-linear model.

The non-linear cost model introduces two assumptions not present in the linear model: the existence of fixed costs, and of nonconstant marginal costs. Figure 2, which represents the cost function of the monopolist, is the key diagram used in the Areeda-Turner model.¹⁹ The cost relationship illustrated by Figure 2 is the basic textbook diagram of short run production costs of the firm viewed statically—*i.e.*, at a single moment in time.

ence it needs to reduce its costs. Financiers do not know with certainty if the new entrant will progress down the textbook curve that illustrates declining costs as cumulative output increases. Thus, they may balk at underwriting large short run losses. See F. SCHERER, *supra* note 1, at 250-52.

¹⁶ See *Pierce Packing Co. v. John Morrell & Co.*, 633 F.2d 1362, 1366-67 (9th Cir. 1980); *Janich Bros., Inc. v. American Distilling Co.*, 570 F.2d 848, 856 (9th Cir. 1977), *cert. denied*, 439 U.S. 829 (1978); *International Air Indus., Inc. v. American Excelsior Co.*, 517 F.2d 714, 724-25 (5th Cir. 1975), *cert. denied*, 424 U.S. 943 (1976); *ILC Peripherals Leasing Corp. v. IBM Corp.*, 458 F. Supp. 423, 433-34 (N.D. Cal. 1978).

¹⁷ All economic (and other scientific) models are simplifications of reality and hence unrealistic. The utility of a model, however, depends upon whether the model omits something essential to the purpose for which it is used.

¹⁸ See 3 P. AREEDA & D. TURNER, *ANTITRUST LAW* ¶ 712 (1978); Areeda & Turner, *Predatory Pricing and Related Practices Under Section 2 of the Sherman Act*, 88 HARV. L. REV. 697, 700-01 (1975).

¹⁹ See note 18 *supra*.

FIGURE 2

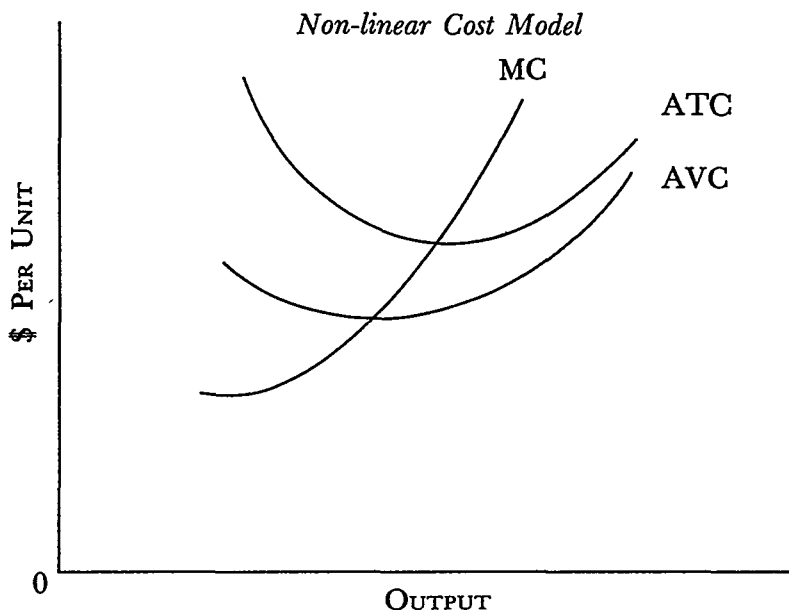


Figure 2 clearly demonstrates that marginal costs (MC), average variable costs (AVC), and average total costs (ATC) are not identical in a non-linear cost function.²⁰ In contrast to the simple linear model of Figure 1, Figure 2 assumes that significant fixed costs are present and marginal or incremental costs rise as output increases. This explains why the average variable cost function and average total cost function decline at first, but eventually rise as output is increased, giving them their familiar U-shaped pattern.²¹ The underlying arithmetic dictates that the marginal cost curve must pass through the lowest points on both the average variable cost curve and the average total cost curve.

3. *The Areeda and Turner Analysis of the Non-linear Cost Model*

The Areeda and Turner analysis of price-cost relationships,²² which is discussed in the next several paragraphs in conjunction

²⁰ Average total cost, usually expressed simply as average cost, equals the sum of average variable costs and average fixed costs.

²¹ Declining average fixed costs (achieved by spreading constant fixed costs over a larger volume) and low marginal costs pull the average cost curves down as output is gradually increased from zero. Continuously increasing marginal costs (produced when output begins to strain plant capacity) eventually overcome the effect of the declining average fixed costs and force average total costs to rise as output reaches higher levels.

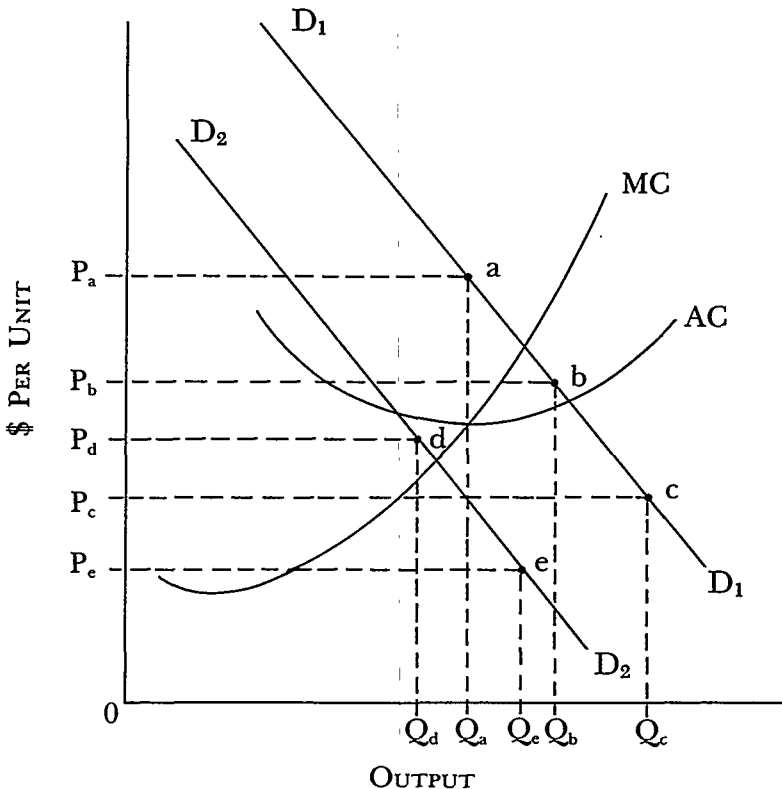
²² See note 18 *supra*.

with Figure 3, simply follows the basic textbook analysis of the short run model of the firm. Their analysis will facilitate an understanding of the non-linear model and lay the foundation for a more detailed discussion of the Areeda-Turner rule as well as alternative rules for predatory pricing.

Figure 3 replicates the cost curves in Figure 2 with two differences. First, the average variable cost curve is omitted for clarity of exposition. In their theoretical development, Areeda and Turner employ only marginal costs and average *total* costs. (Average *variable* costs enter their analysis later as a legal proxy for marginal costs.) Second, two alternative demand curves are imposed on the diagram. D_1D_1 represents a relatively strong demand and D_2D_2 represents a weak demand. An understanding of price-cost relationships generally, and the Areeda-Turner combinations in particular, is facilitated by the recognition that a price-quantity choice for the monopolist must be on the demand

FIGURE 3

Demand Functions Added to Non-linear Cost Model



curve.²³ Within this framework, it is now possible to consider the monopolist's potential responses to a new entrant in either of these two possible states of demand.²⁴

a. *Strong Demand.* The demand curve labeled D_1D_1 illustrates a market demand sufficient to permit productive output beyond the point of lowest per unit cost. Assuming these demand conditions, a monopolist might choose three possible prices. Price P_a is clearly above both the monopolist's average cost and marginal cost for output Q_a . This situation is identical to that illustrated in the simple linear diagram (Figure 1). Price P_a excludes an entrant who cannot produce at an output level that yields average costs as low as P_a and hence, will eliminate only a less efficient rival. In light of the earlier discussion regarding the negative social welfare consequences of monopoly,²⁵ the reader should understand that over the long run, competition is not necessarily improved by permitting a price cut to P_a notwithstanding that a less efficient firm is eliminated. Areeda and Turner, however, label a price cut to this level "competition on the merits" that should be lawful.²⁶ As demonstrated in the preceding discussion regarding the social welfare costs of monopoly,²⁷ the efficiency issues generated by predatory pricing are often complex even in the seemingly simple cases.

If P_a is not low enough to eliminate the entrant under the demand conditions of D_1D_1 , the monopolist that wishes to eliminate its rival may need to drop its price to P_b and expand output to Q_b . As illustrated by Figure 3, price P_b covers average cost but is below marginal cost. Such a price is inefficient because it does not reflect the full incremental costs of production.²⁸ Although they have equivocated in their analysis of Price P_b , Areeda and Turner now agree that this price is below the level of efficient pricing and hence is predatory when it falls substantially below marginal cost.²⁹

²³ Any price-quantity choice must be on the demand curve simply because the demand curve defines the price at which any quantity can be sold. It is also implied in this illustration that the entrant is relatively small, an assumption that for present purposes is not critical for the results of the model.

²⁴ The monopolist's original price is not indicated in Figure 3. The analysis only requires that the price must have been high enough to attract new entrants.

²⁵ See note 15 and accompanying text *supra*.

²⁶ Areeda & Turner, *supra* note 18, at 706. See generally *id.* at 704-11.

²⁷ See text accompanying notes 14-15 *supra*.

²⁸ That is, marginal cost is the additional cost per unit of output. Price P_b is below the marginal cost curve at output level Q_b .

²⁹ At first, Areeda and Turner viewed price P_b as permissible so long as it was above average total cost. They reasoned that an efficient entrant should be able to find some

If P_b is not low enough to eliminate the entrant, the monopolist may find it necessary to lower its price to P_c . At output Q_c , associated with P_c , the price does not cover either the monopolist's marginal cost or its average total cost. The monopolist not only directly misallocates resources by producing output for which the price is less than marginal cost, but also eliminates a more efficient rival that should be preserved. This situation resembles the below-cost pricing illustrated in the simple linear model and is clearly anticompetitive. Not surprisingly, Areeda and Turner agree that such a price is unlawful.³⁰

b. *Weak Demand.* Demand curve D_2D_2 illustrates a condition of slack demand in which the output level that consumers demand at any profit-yielding price is below the level at which production is most efficient. This is normally described as a condition of excess capacity and it produces yet another variation—the situation associated with price P_d and output Q_d . At this price and output level, price is greater than marginal cost but below average total cost. Both the entrant and the monopolist would lose money at this price. If the entrant perceives that the monopolist has a deep pocket and that the monopolist is determined to fight intruders, the entrant will presumably see the folly of remaining in the market and drop out. Although they note that an equally efficient entrant in long run terms could be eliminated by P_d , Areeda and Turner would permit such a price, reasoning that this result occurs only when there is excess capacity. The loss of the entrant's productive capacity causes no social loss because some existing excess capacity must be retired.³¹

If P_d is not sufficiently low to eliminate entrants, the monopolist may reduce price to P_c . Price P_c is identical in its impact to P_e and thus, is inefficient even in the short run. Areeda and Turner as well as other authors consider this price clearly anticompetitive.³²

output level at which average costs would be less than P_b ; thus, only less efficient rivals would be excluded. See Areeda & Turner, *supra* note 18, at 712-13. After Williamson published his critique, Areeda and Turner retreated from this position to one that allowed the lower price only if it was not substantially below marginal cost. See 3 P. AREEDA & D. TURNER, *supra* note 18, ¶ 715b2.

³⁰ See 3 P. AREEDA & D. TURNER, *supra* note 18, 715b.

³¹ *Id.* ¶ 714a, n.1, ¶ 715a, n.7. Areeda and Turner do not discuss the possibility that a small but more efficient entrant, as measured by average total costs, will be eliminated by price P_d . This might occur if the small firm's average cost were below AC at output Q_d but its variable and marginal costs were above P_d . In that event, price P_d would eliminate the lower-cost producer in terms of total cost, leaving the high cost capacity in place.

³² *Id.* ¶ 715b.

As demonstrated by the preceding discussion, the non-linear cost model introduces additional complexities not present in the linear cost model even though the analysis is confined to the relatively simply textbook diagram of short run costs. The following section uses the non-linear cost model to examine the specific economic theories of predation proposed for legal application.

C. Theories and Proposed Rules for Predatory Pricing: The Short Run Marginal Cost Approach

Economic and legal commentators do not agree either on the best analytic approach to predatory pricing or on the appropriate legal rule. This diversity of analytic viewpoints challenges lawyers and judges who must resolve pending cases. The subject becomes more manageable, however, by categorizing the theories and proposed rules into short run and long run approaches, and by analyzing them against the background of the basic logic of predatory pricing. Areeda and Turner have developed the principal short run analysis. Their theory remains the focal point for study because it initiated the fundamental reexamination of predatory pricing policy.

1. The Areeda-Turner Rule

Areeda and Turner derive their rule directly from short run static analysis based on the non-linear cost model. Under this analysis, marginal cost is the correct standard for efficient pricing. If the dominant firm's price equals or exceeds marginal cost, it cannot eliminate a more efficient competitor (except when excess capacity exists).³³ Areeda and Turner therefore consider as nonpredatory any price charged by a dominant firm that at least equals its short run marginal costs. This simply stated argument forms the core of the Areeda and Turner analysis. The Areeda-Turner rule, however, is more complex because marginal cost is an analytic tool of economic theory, ill suited for courtroom use. To adjust the short run pricing model for purposes of litigation, Areeda and Turner substitute average variable cost as a proxy for marginal cost.

Building on this foundation, Areeda and Turner propose the following conceptually simple rules, applicable to single firm pred-

³³ See notes 22-32 and accompanying text *supra*.

atory pricing under both the Sherman Act³⁴ and the Robinson-Patman Act³⁵:

- (A) A price above marginal cost is conclusively presumed lawful.
- (B) A price below marginal cost is conclusively presumed unlawful, subject to the limitation that under conditions of strong demand, price may fall moderately below marginal cost so long as it remains above average total cost.
- (C) Because it is difficult to ascertain marginal cost, average variable cost may serve as a proxy for marginal cost yielding these conditions:
 - (1) A price above "reasonably anticipated" average variable cost is conclusively presumed lawful;
 - (2) A price below average variable cost is conclusively presumed unlawful.³⁶

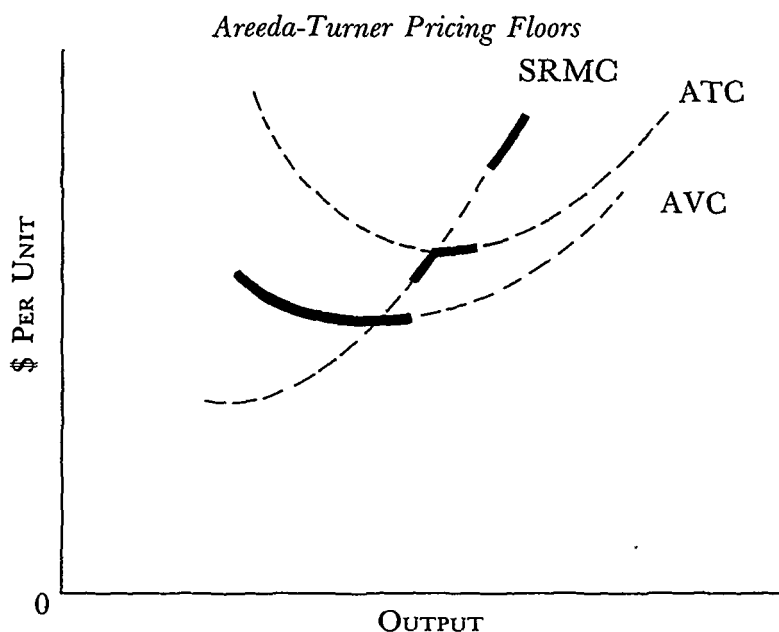
The simplicity of the Areeda-Turner pricing rules is only superficial. Having compromised the marginal cost principle to the practical limitations of judicial proof by introducing the proxy of average variable cost, Areeda and Turner were forced to make further adjustments. There is no constant relationship between average variable cost and marginal cost: average variable cost may be less than, equal to, or greater than marginal cost, depending upon the level of output. The strain on the Areeda-Turner theory becomes excessive when marginal cost rises significantly above average variable cost or (at higher output levels) substantially above average total cost. In these situations, an average variable cost proxy for marginal cost is unacceptable—the legal rule must embody the more problematic marginal cost standard. The net result is that the legal rule must account for not only the relationship between price and cost at the current level of output, but also for the relationships between the different cost functions. These relationships are illustrated in Figure 4, which shows the Areeda-Turner pricing floors with solid lines:

³⁴ Predatory pricing violates the proscription in § 2 of the Sherman Act, 15 U.S.C. § 2 (1976), against monopolization or the attempt to monopolize. *See, e.g., United States v. Grinnell Corp.*, 384 U.S. 563, 570 (1966).

³⁵ The Clayton Act, as amended by the Robinson-Patman Act, 15 U.S.C. §§ 13(a), 13a (1976), prohibits predatory pricing by a firm serving several markets through its proscription against price discrimination. *See, e.g., Utah Pie Co. v. Continental Baking Co.*, 386 U.S. 685 (1967).

³⁶ *See* 3 P. AREEDA & D. TURNER, *supra* note 18, ¶ 711d.

FIGURE 4



It is strikingly apparent that any one of three relevant costs may become the legal floor at different levels of output. At low output levels, average variable cost (AVC) is the floor below which price cannot drop; at moderate levels when short run marginal cost (SRMC) rises "significantly" above AVC, SRMC becomes the floor; as output increases over the moderate range, average total cost (ATC) becomes the pricing floor; finally, as output continues to increase, SRMC again becomes the pricing floor.³⁷

Areeda and Turner consciously developed a permissive predatory pricing rule because they believe that the phenomenon of predation is rare.³⁸ They were also concerned about the detrimental effects of a more restrictive rule or policy; they feared that such a rule would invite frequent litigation attacking pricing behavior, and thereby deter even socially desirable pricing conduct because risk-averse firms would avoid otherwise lawful price

³⁷ The Areeda-Turner pricing standards are further complicated by the use of "reasonably anticipated" costs in place of actual costs. *Id.* ¶ 715d. They reason that [a] firm may legitimately determine its price and output levels according to expected future costs rather than historical accounting costs. Of course, historical costs may be the best approximation of costs for the near future, but a defendant should be permitted to show why it anticipated lower costs in the future.

Id. at 174.

³⁸ Areeda & Turner, *supra* note 18, at 698-99.

reductions.³⁹ Their rule thus places restraints only on dominant firms. It uses average variable cost as a proxy for marginal cost when average variable cost falls below, but not "significantly" below, marginal cost; the rule departs from the marginal cost principle again when marginal cost rises moderately, but not excessively, above average total cost.⁴⁰ On the other hand, Areeda and Turner have mitigated the inherent underinclusiveness of their rule by including in their definition of average variable cost components not normally defined as variable costs.⁴¹ The legal standard that emerges from these complex adjustments cannot be simply characterized, but Areeda and Turner nevertheless suggest per se application.

2. *Economic Critique of the Areeda-Turner Rule*

a. *Summary.* The Areeda-Turner proposal often has been challenged by economic commentators. The critics, who include Professors Baumol, Greer, Joskow, Klevorick, Posner, Scherer, Schmalensee, and Williamson, contend that a short run marginal cost pricing rule disregards the essence of the predatory pricing problem—strategic behavior over time. Several critics also doubt, in light of these strategic considerations, whether the rule will achieve efficiency even in the short run.

b. *A Basic Objection to the Marginal Cost Standard.* Even when they share Areeda and Turner's assumption that the goal of a predatory pricing policy is confined to short run efficiency, many critics still fault the marginal cost standard. They argue that the necessity of using average variable cost as a proxy for marginal cost will inevitably distort achievement of short run efficiency, particularly at outputs where average variable cost is less than marginal cost.⁴² In addition, application of the marginal cost/average variable cost test is significantly affected by variances in the ratio of fixed to variable cost.⁴³ This variance may occur when the competing firms employ radically different technologies, produce slightly differing products, or possess differing degrees of vertical integration. A marginal cost pricing rule could, under

³⁹ See 3 P. AREEDA & D. TURNER, *supra* note 18, ¶¶ 711c, 714.

⁴⁰ *Id.* ¶¶ 715b, 715d.

⁴¹ For example, they would treat all advertising and promotional expenses as a variable (short run) cost even though some of these expenses are clearly long run in nature. See *id.* ¶ 715c.

⁴² See Posner, *The Chicago School of Antitrust Analysis*, 127 U. PA. L. REV. 925, 942 (1979).

⁴³ Economists also refer to this ratio as the capital intensity of production.

such circumstances, generate large differences in pricing discretion among firms with identical total costs.⁴⁴

c. *Marginal Cost Rule Frustrated by Short Run Output Expansion.* Because a judicially sanctioned marginal cost rule will become one of the legal constraints facing each firm, many critics assert that further adaptive or strategic behavior must be anticipated. Professor Scherer has produced an elaborate analysis illustrating the potential effects of a marginal cost rule for predatory pricing.⁴⁵ Although its fine detail is complex, the fundamentals of his analysis are easily understood.⁴⁶

Scherer presents a strategy by which a dominant firm might circumvent a marginal cost pricing rule by taking preemptive action prior to entry. A dominant firm utilizing this strategy, which is effective even against an equally efficient entrant, will set its pre-entry output at a level so high that the market can accommodate the entrant's additional output only at a price below the entrant's average cost. (It is assumed that scale economies require that the entrant be of reasonable size if it is not to suffer significantly higher costs than the existing dominant firm.) The putative entrant, foreseeing these repercussions, is deterred from entering the market even though the pre-entry price is always above the dominant firm's costs. This tactic, which requires the monopolist to forgo some of its short run profits in an attempt to preserve its monopoly position, is termed "limit pricing."⁴⁷

d. *Marginal Cost Rule Frustrated by Strategic Long Run Capacity Choices.* Because of the method by which the Areeda-Turner rule provides added flexibility to a dominant firm with excess capacity, Professor Williamson has argued that the rule encourages a firm deliberately to choose a plant size that is larger than would be optimal to produce the short run profit-maximizing output, and to operate that plant at less than full capacity.⁴⁸ To the extent that this occurs, the dominant firm's present or pre-entry output is less than its most efficient level of output. At this relatively low output level, illustrated by the "weak demand" case of Figure 3

⁴⁴ See Williamson, *Williamson on Predatory Pricing II*, 88 YALE L.J. 1183, 1188-89 (1979).

⁴⁵ See Scherer, *Predatory Pricing and the Sherman Act: A Comment*, 89 HARV. L. REV. 869 (1976). See generally F. SCHERER, *supra* note 1, at chs. 11 & 12.

⁴⁶ For a more detailed explanation of Professor Scherer's model, see Appendix A *infra*.

⁴⁷ See Appendix A *infra*. Areeda and Turner have questioned the amount and frequency of predatory pre-entry output expansion. See 3 P. AREEDA & D. TURNER, *supra* note 18, ¶ 718.

⁴⁸ See Williamson, *Predatory Pricing: A Strategic and Welfare Analysis*, 87 YALE L.J. 284, 299-302 (1977). The Williamson model explaining this aspect of strategic behavior is discussed in detail in Appendix B *infra*.

(line D_2D_2), the dominant firm's marginal cost is far below its average total cost. Under these conditions, a marginal cost pricing rule provides the dominant firm with a substantial range over which it may expand output and reduce price below its own average cost and thus, below the costs of an equally efficient entrant. An entrant recognizing this contingency is deterred from entering the market.

e. *The Essence of Predatory Behavior and the General Insufficiency of Cost-Based Standards.* Criticism of the Areeda-Turner rule extends beyond its marginal cost formulation to the inherent limitations of any cost-based pricing standard. Such mechanical standards fail to address the strategic essence of predation, which is essentially a form of communication aimed at convincing prospective entrants that they will not recoup their costs and earn a positive return. Predation is economically undesirable when it excludes from the market any firm that would make a positive contribution to allocative efficiency, measured over the long run. For this reason, a short run marginal cost pricing rule may not effectively bar predatory behavior that reduces economic efficiency. The net result is an underinclusive legal standard. Some critics have concluded that an effective predatory pricing policy must take an approach that includes strategic factors and assesses legal rules in terms of long run welfare effects.⁴⁹

Indeed, no single cost standard—not even a full cost standard—is sufficiently flexible to induce efficient behavior by a firm operating at varying levels of capacity over the full range of business and production possibilities. A rule based on a full cost standard must still account for the possibility that a price below average total cost may be justified under some conditions, such as chronic excess capacity or large scale new entry.⁵⁰ Areeda and Turner have attempted to address this problem under their marginal cost rule by employing multiple cost standards that vary with output level.⁵¹ Multiple cost standards, however, require ascertaining the shape and general position of each relevant cost function, which is a difficult task.⁵² Alternative rules propose a single full cost standard supplemented by additional evidence of market

⁴⁹ But see McGee, 23 J.L. & ECON. *supra* note 6, at 307-20 (expressing serious doubts about the contribution of alternative models proposed by Areeda-Turner critics that are insufficiently "dynamic").

⁵⁰ See Joskow & Klevorick, *A Framework for Analyzing Predatory Pricing Policy*, 89 YALE L.J. 213, 252-54 (1979).

⁵¹ See 3 P. AREEDA & D. TURNER, *supra* note 18, ¶¶ 715a, 715b.

⁵² See text accompanying note 37 *supra*.

condition, intent or both.⁵³ Other critics would entirely or substantially abandon cost-based rules in favor of rules resting on other criteria.⁵⁴

3. Areeda and Turner Rebuttal

Areeda and Turner have responded to their critics, particularly Scherer and Williamson.⁵⁵ Their rebuttal is briefly summarized as follows: Although it is the *summum bonum* of a predatory pricing policy, long run welfare or efficiency cannot be effectively achieved within the limitations of the legal system. Thus, the marginal cost rule is preferred not because it is ideal but because it is the best standard among imperfect alternatives. In particular, the marginal cost rule is preferable because it is unlikely to misclassify as predatory, behavior that is nonpredatory. This is a decisive factor because predatory behavior, in their view, is rare.

D. Alternative Long Run Pricing Rules

Each of Areeda and Turner's principal critics proposes alternative rules, based on long run economic goals. This array of alternatives to the marginal cost rule, briefly outlined in the preceding section, provides the necessary background for framing the economic issues in predatory pricing cases. The essentials of long run cost analysis are discussed first, followed by a discussion of the proposed long run pricing rules.

1. Essentials of Long Run Cost Analysis

Analyzing the long run behavior of the firm involves additional cost functions, the most important of which is long run average cost. The Williamson model conveniently illustrates the application of long run cost theory to predatory pricing.⁵⁶ Although the courts have not employed them in a rigorous or diagrammatical form, long run models have indirectly affected judicial decisions because of the influence exercised by predatory pricing commentators.

For economists, the long run is that period in which productive capacity is subject to change. Williamson directly utilizes long

⁵³ See text accompanying notes 64-66 *infra*.

⁵⁴ See text accompanying notes 67-79 *infra*.

⁵⁵ The details of the various rebuttals and surrebuttals, which have not changed the views of the participants, are quite technical and thus, are not fully explicated in this Article.

⁵⁶ See Appendix B *infra*.

run analysis to support his thesis that a marginal cost rule creates an incentive for a dominant firm to build excess capacity in order to deter entry. A basic knowledge of Williamson's diagrammatic model facilitates understanding of the fundamentals of long run cost analysis.

Figure 5, which depicts the industry demand curve, marginal revenue curve, and the dominant firm's long run average cost curve, illustrates the key relationships in Williamson's long run model. The diagram thus contains two concepts—marginal revenue and long run average costs—not used in the models previously discussed. Marginal revenue (MR) is the additional revenue procured from the sale of another unit of output.⁵⁷ Long run average total cost (often termed long run average cost or LRAC) is an extension of the concept of short run average total cost. Short run average cost illustrates how average total cost changes at different output levels for a *particular size plant*. On the other hand, long run average cost illustrates how average total cost changes over the *full range of possible plant sizes*. It is essential to remember that the long run average cost curve is derived from a series of short run average cost curves. Every point on the long run curve thus represents in theory a particular size plant chosen to minimize the costs of producing that level of output.⁵⁸

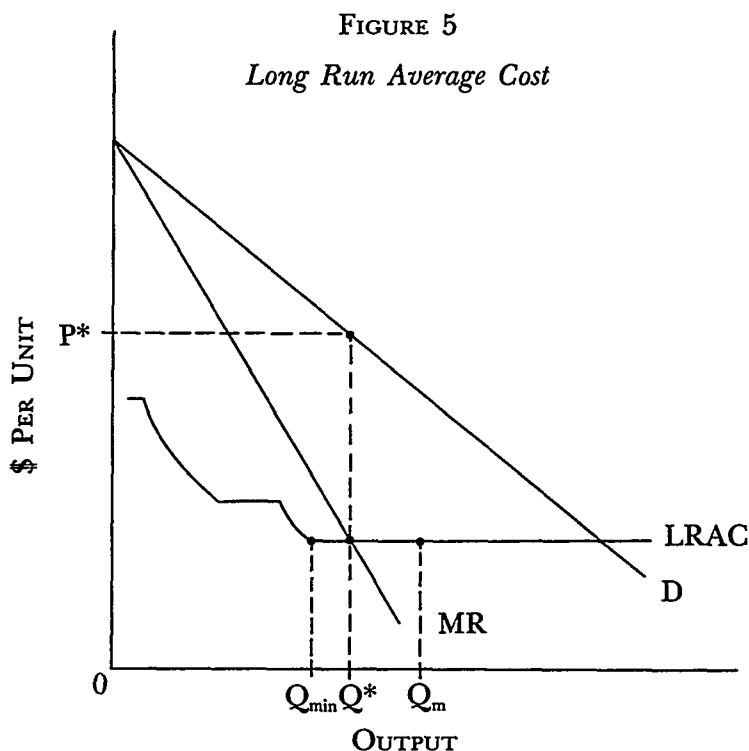
As indicated by Figure 5, long run average cost declines over low output levels but eventually becomes constant at Q_{\min} ; thus, there are no further economies of scale beyond that output level. Q^* is the profit maximizing output and P^* is the profit maximizing price, provided that the dominant firm is not concerned with entry by other firms.⁵⁹

Williamson uses this long run cost analysis to demonstrate that the limited constraints of the Areeda-Turner marginal cost rule allows a dominant firm strategically to select a plant size that will preclude entry by an equally efficient firm. As illustrated in Figure 5, a pure monopolist would maximize profits at plant size Q^* . If the dominant firm built a size Q^* plant, however, another firm could enter the market with an equally efficient plant of size

⁵⁷ Recall that marginal cost is the additional cost incurred by producing another unit of output. Marginal revenue is used to identify the short run profit maximizing output for a monopoly.

⁵⁸ For a diagrammatic representation of the relationship between the long run function and the short run curves at one output level, see note 61 *infra* (Figure 6).

⁵⁹ The profit maximizing output Q^* denotes where $MR = LRAC$ (which also equals long run marginal cost at output levels beyond Q_{\min}); the profit maximizing price P^* corresponds with demand at output Q^* .



Q_{min} without expanding total output so greatly as to force price below $LRAC$.⁶⁰

A dominant firm could strategically attempt to deter entry by constructing a larger than optimal plant. The larger plant operates most efficiently (at lowest cost) not at production level Q^* , but at the substantially higher production level of Q_m . Q_m is so much greater than Q^* that if the monopolist actually produced output Q_m insufficient demand would prevent the entrant from fully utilizing an efficient plant size. Thus, if the entrant builds a large and efficient plant, the additional output produced will drive the market price below the entrant's own costs. Moreover, unlike the situation in the Scherer model, the dominant firm cannot be impugned for strategically setting output because it would be operating at an efficient level of output for the chosen plant size.⁶¹

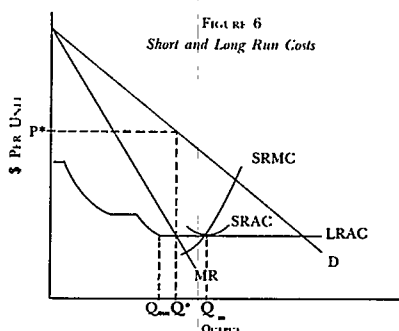
⁶⁰ The dominant firm could, of course, increase short run output above Q^* . Its plant, which was selected from all possible plant sizes that constitute the $LRAC$ schedule, is designed to operate most efficiently at output Q^* ; therefore, such an expansion would push its production costs above the entrant's.

⁶¹ To understand why the Areeda-Turner rule is not violated, it is necessary to explain the relationship between short and long run costs. When the dominant firm constructed a

On the other hand, if the entrant chooses a smaller and less efficient plant, it will start from a position of high average costs and, given the proper choice of Q_m , the dominant firm can expand output slightly beyond Q_m to force the price below the entrant's costs without violating the Areeda-Turner rule because the price will still be equal to or greater than its marginal cost. Thus, there is no profitable output at which entrant can operate, and it will decline to enter. The dominant firm, on the other hand, continues to operate its plant at the short run profit maximizing level.

Williamson concludes from this analysis that the Areeda-Turner rule will not prevent significant predatory behavior. He proposes an alternative, output-based rule that would prohibit a dominant firm from increasing post-entry output beyond its pre-entry output level.⁶²

plant that would reach maximum efficiency (lowest cost) at output level Q_m , the minimum point on the firm's short run average total cost curve also became Q_m . Figure 6 depicts this relationship by superimposing the short run cost curves at output Q_m on the long run average cost curve from Figure 5.



Pre-entry output (Q^*), however, is below Q_m and price (P^*) is above LRAC. If the dominant firm responds to entry by increasing output to Q_m and reducing price to LRAC, the Areeda-Turner rule is still not violated because price has not fallen below short run marginal cost ($SRMC = LRAC$ at Q_m).

⁶² See text accompanying notes 67-69 *infra*; Appendix B *infra*.

Williamson's proposal provoked an extensive debate with Areeda and Turner focusing on the efficacy of their alternative proposals. See Williamson, *supra* note 48; Areeda & Turner, *Williamson on Predatory Pricing*, 87 YALE L.J. 1337 (1978); Williamson, *supra* note 44. Although conducted entirely at a theoretical level, the exchange between these scholars did clarify several issues. First, predatory pricing rules promote multiple goals, and no rule optimally serves all relevant goals. A cost-based rule, for example, is superior for discouraging inefficient entry; an output maintenance rule, on the other hand, is preferable for inducing higher pre-entry output. Second, the initial choice between a static and a dynamic economic model as most appropriate for applied analysis will decisively effect eventual policy conclusions. Third, both cost-based and output-based rules are difficult for courts to apply because both involve burdensome, highly technical issues of proof. Fourth, absence of empirical information necessitates making intuitive assumptions at crucial points.

2. Proposed Long Run Pricing Rules

At least five distinct pricing rules have been proposed by economic analysts critical of the Areeda-Turner rule. These proposed rules, which are based on the long run approach, can be categorized in three groups: (a) cost-based rules; (b) non-cost rules; and (c) open ended rule-of-reason approach.⁶³

a. *Cost-Based Rules.* Unlike the Areeda-Turner rule, long run cost-based rules do not rely solely on cost determination. Cost remains a crucial parameter, however, for these alternative rules.

The Posner Rule. Posner agrees with Areeda and Turner that the goal of predatory pricing policy is to promote economic efficiency, and that efficiency is demonstrated by cost superiority. Thus, he believes, as do Areeda and Turner, that sales below short run marginal cost are inherently predatory. Posner diverges from Areeda and Turner, however, by maintaining that predation must be measured from a long run perspective and by recognizing that predation constitutes strategic behavior deliberately designed to exclude an equally efficient (or more efficient) competitor.⁶⁴

Posner accordingly proposes a presumptive rule that defines predation as either sales below short run marginal cost, or sales below average total cost with intent to exclude a competitor.⁶⁵ The average total cost formulation is presumptive, but rebuttable by evidence demonstrating that changes in cost or demand have rendered either long run marginal cost or short run marginal cost the appropriate cost standard. Long run marginal cost is the appropriate cost standard when the cost of replacing a plant that must be permanently maintained to satisfy demand significantly deviates from average total cost. On the other hand, short run marginal cost is the appropriate cost standard—making intent irrelevant—when the existing plant would not be replaced because of excess capacity, obsolescence, or similar factors.⁶⁶

⁶³ A fourth suggested alternative is no predatory pricing rule. See R. BORK, *supra* note 6, at 154. Even Professor McGee, who rejects most predatory pricing rules, dismisses this as a nonviable alternative. See McGee, 23 J.L. & ECON., *supra* note 6, at 317.

⁶⁴ See R. POSNER, *supra* note 11, at 188-91.

⁶⁵ Greer also favors the latter standard—sales below average total cost with intent to exclude. See Greer, *A Critique of Areeda and Turner's Standard for Predatory Practices*, 24 ANTITRUST BULL. 233, 242-52 (1979).

⁶⁶ Posner adds, somewhat tentatively, that the rule might restrain overzealous prosecution by "requir[ing] the plaintiff to prove that the relevant market has characteristics predisposing it toward the effective use of predatory pricing." See R. POSNER, *supra* note 11, at 191. Such characteristics would include monopolistic market structure (high return to predation) and greater diversification of the dominant firm (demonstration effect). *Id.*

The Joskow-Klevorick Rule. Emphasizing that predatory pricing is profitable only in non-competitive markets, Joskow and Klevorick propose a two-tiered predatory pricing test.⁶⁷ The first tier requires a finding that monopolistic conditions exist in the relevant predatory pricing market; the second tier requires a detailed assessment of the alleged predatory pricing conduct. First tier analysis requires an assessment of market structure and performance, including short run monopoly power, the condition of entry, and certain dynamic factors, such as innovation. The first stage test functions as a screening device; there is no need to go on to the second tier analysis unless monopolistic market conditions exist.

Second tier analysis uses the following cost-based rules:

1. A price below average variable cost is conclusive evidence of predation;
2. A price between average variable cost and average total cost is presumptive evidence of predation, but this presumption may be rebutted by proof that the alleged predator possesses substantial excess capacity which was not caused by a deliberate exclusionary policy;
3. A price reduction that is followed by a price increase within two years is presumptive evidence of predation, and this presumption holds even if the price is above average total cost.⁶⁸

Other evidence, particularly relating to predatory intent, is relevant under the second and third rules.⁶⁹

b. *Non-cost-Based Rules.* The Williamson and Baumol rules described below rely substantially or entirely on non-cost factors.

The Williamson Rule. As previously noted,⁷⁰ Williamson focuses on predatory pricing conduct involving the use of the dominant firm's excess productive capacity. The dominant firm, according to Williamson, can frustrate entry by maintaining, prior to entry, a level of capacity at which its optimal scale of production exceeds its present level of output. Thus, at current output levels, marginal cost is far below short run average cost; and if the

⁶⁷ See Joskow & Klevorick, *supra* note 50, at 242-59.

⁶⁸ *Id.* at 250-55. This approach is similar to the Baumol rule. See note 74 and accompanying text *infra*. For a discussion of the impact of inflation and other changes in costs on the application of this rule, see text accompanying notes 118-19, 123 *infra*.

⁶⁹ Joskow & Klevorick, *supra* note 50, at 259. Although they classify their analysis as a rule-of-reason approach, Joskow and Klevorick's reliance on cost-based presumptive rules supports its classification as a cost-based approach. The classification label, however, is not essential to this analysis.

⁷⁰ See footnotes 56-62 and accompanying text *supra*.

dominant firm increases output, its short run average cost will decrease. If entry occurs under these conditions, the dominant firm can eliminate the entrant by either maintaining or, if necessary, expanding output to a level that will force price below the entrant's average cost but not below the dominant firm's marginal cost.

The Williamson model is designed to reveal the perverse incentive for a dominant firm, subject to a cost-based pricing rule, to build an uneconomically large plant as a weapon against new entry. To counter this tendency, Williamson proposes a system of rules that prevents a dominant firm from increasing output for a limited period of time after entry.⁷¹ Although their structure is rather complex, Williamson's rules, in effect, prevent a dominant firm faced with new entry from expanding output for a period of eighteen months, and from selling below full cost over the long run.⁷² These rules are particularly sensitive to the new entrant or small expanding firm, and are effectively more permissive for dominant firm pricing in competition with established rivals.⁷³

The Baumol Rule. Baumol rejects cost-based rules because they fail to achieve allocative efficiency in pricing. Although the economic theory he relies on is extremely complex, the rule Baumol proposes is perhaps the simplest of all predatory pricing rules. His rule would permit the dominant firm to reduce price freely in the face of competition or new entry, but if that price reduction forces an entrant or existing smaller firm to leave the market, the dominant firm could not increase price for several

⁷¹ See Williamson, *supra* note 48, at 331-37.

⁷² McGee has pointed out that expansion by a dominant firm in the face of entry is consistent with an alternative model of firm behavior (called the "dominant firm" model) in which there is no predatory intent. In this model the dominant firm accepts the supply function of the entrants as beyond its control and simply maximizes profits over that part of the demand which remains available. The resulting output of the dominant firm may be greater than, less than, or equal to its pre-entry output depending on the shape of the relevant demand and supply functions. Hence, if the dominant firm model is plausible, it is not possible to infer from a post-entry expansion of output that predatory behavior of the type modeled by Williamson has necessarily occurred. See McGee, 23 J.L. & ECON., *supra* note 6, at 324.

⁷³ In the case of established rivals, the output restriction rule is inapplicable, and the pricing restriction rule applies only when the industry is at least a loose oligopoly and the price reductions are not merely episodic or temporary. When such conditions prevail, prices are predatory if (1) they are less than average total cost in the intermediate run (except under conditions of excess capacity), or (2) if they are less than full costs over the long run. If excess capacity exists, prices are predatory when they are below average variable cost. See Williamson, *supra* note 48, at 321-23, 336-37.

years thereafter (except if justified by increased costs or other economic conditions).⁷⁴

Baumol's rule is designed to prevent a firm from cutting price below a level it cannot maintain on a long term basis. The dominant firm, presumably aware of its own costs, is unlikely to set a price below its full costs of production. Hence, the rule seeks to protect an equally efficient entrant from predation. In addition, this rule provides the dominant firm with the freedom to reduce prices, thus promoting allocational efficiency and assuring maximum responsiveness to consumer demand.

c. *Rule-of-Reason Approach*. Scherer perceives deficiencies in all mechanical standards for predation, whether based on cost or non-cost factors,⁷⁵ arguing that the only viable rule for predatory pricing is a "rule-of-reason" inquiry into all relevant variables. Scherer's rejection of more limited approaches is based on his conclusion that the Areeda-Turner marginal cost pricing rule, as applied to the large scale entrant, produces perverse effects. The marginal cost rule, according to Scherer, allows a dominant firm to preclude entry by setting pre-entry output at a sufficiently high level so that additional post-entry output forces price below cost. Alternatively, Scherer argues that a rigid marginal cost pricing rule will force a dominant firm to reduce output following entry, thereby discouraging beneficial pre-entry output expansions, as well as predatory price reductions by dominant firms.⁷⁶

It is easier to articulate what the rule-of-reason approach rejects than what it includes. Scherer calls for a "thorough examination of the factual circumstances,"⁷⁷ particularly of intent and the structural consequences of the alleged predatory behavior. More explicitly, he states that the relevant variables should include

the relative cost positions of the monopolist and fringe firms, the scale of entry required to secure minimum costs, whether fringe firms are driven out entirely or merely suppressed, whether the monopolist expands its output to replace the output of excluded rivals or restricts supply again when the rivals withdraw, and whether any long-run compensatory expansion

⁷⁴ See Baumol, *Quasi-Permanence of Price Reductions: A Policy for Prevention of Predatory Pricing*, 89 YALE L.J. 1 (1979).

⁷⁵ Professor Schmalensee also rejects mechanical standards. See Schmalensee, *On the Use of Economic Models in Antitrust: The ReaLemon Case*, 127 U. PA. L. REV. 994, 1028-31 (1979).

⁷⁶ See Scherer, *supra* note 45, at 873-75. See generally F. SCHERER, *supra* note 1, at 537-38 and Appendix A, *infra*.

⁷⁷ Scherer, *supra* note 45, at 890.

by the monopolist entails investment in scale economy—embodying new plant.⁷⁸

Areeda and Turner have criticized this approach as unworkable.⁷⁹

II

JUDICIAL APPLICATIONS OF ECONOMIC PREDATORY PRICING THEORIES

The courts face a formidable burden when they formulate legal policy from the widely varying economic theories of predatory pricing. The purpose of Part II is to assist in closing the gap between economic theory and courtroom proof. This analysis provides added insight into the viability of alternative predatory pricing rules—a prerequisite not only to formulating current legal approaches, but also to assessing trends of future development.

Part II summarizes the post-1975 developments in legal standards for predatory pricing, outlining the legal rules that have emerged in the lower courts and their relation to current economic theories. Two testing fact situations, drawn from recent cases, are then presented to probe the meaning and implications of the economic theories as directly applied to specific facts. Projections based on this analysis suggest the direction of future developments and provide a framework for general observations on the legal and economic issues raised by predatory pricing.⁸⁰

A. *Basic Legal Standards*

I. *Background: The Pre-1975 Standard*

The pre-1975 legal standard for predatory pricing hinged on two factors—unfair use of pricing power against new entrants or smaller firms, and protection of long run market competitiveness viewed primarily in terms of market structure. Economic efficiency was not specifically articulated as a legal policy goal. Preda-

⁷⁸ *Id.* (footnote omitted). For a judicial interpretation of the Scherer standard, see *Pacific Eng'r & Prod. Co. v. Kerr-McGee Corp.*, 551 F.2d 790, 797 n.8 (10th Cir.), *cert. denied*, 434 U.S. 879 (1977): "[The Scherer factors] primarily concern whether the monopolist will be able to restrict output, reap monopoly profits, and leave residual demand unsatisfied, and . . . become so entrenched through barriers to entry that it can never be dislodged."

⁷⁹ See Areeda & Turner, *Scherer on Predatory Pricing: A Reply*, 89 HARV. L. REV. 891, 896-97 (1976).

⁸⁰ Projection and observations as to the future must, of course, be tempered by the fact that the Supreme Court has declined to review any of the post-1975 predatory pricing cases.

tory pricing might be held to violate either the Robinson-Patman Act or the Sherman Act⁸¹ even though the legal standards under the two statutes were not identical.⁸² Unfairness was emphasized under the Robinson-Patman Act,⁸³ while structural competitiveness was stressed under the Sherman Act.⁸⁴ Notwithstanding these differences, there was basis for viewing the proscriptions against predatory pricing under both Acts as promoting a similar goal—the establishment of competitive markets in the long run by protecting new entrants and smaller firms in the short run.⁸⁵

Consistent with this view, the courts before 1975 identified a pricing scheme as predatory when they found: (1) monopolistic power or large size advantage of the predator firm; (2) for a firm serving several geographic or related product markets, a pricing differential between the predator's "monopoly" market and its competitive market; (3) sales below average total cost in the competitive market; (4) injury or exclusion of smaller competitors or new entrants as a result of such pricing; and (5) intent of the predator firm to exclude or discipline rivals. The relative importance of these prerequisites—all relevant in any predatory pricing

⁸¹ See notes 35-36 *supra*.

⁸² Under the Robinson-Patman Act, the issue is whether seller price discrimination injured competition at the seller's level. See, e.g., *Utah Pie Co. v. Continental Baking Co.*, 386 U.S. 685 (1967). Under the Sherman Act, the issue is whether the predator firm has monopolized or attempted to monopolize a defined market. See, e.g., *United States v. Grinnell Corp.*, 384 U.S. 563 (1966). The two standards, of course, overlap.

⁸³ *Utah Pie Co. v. Continental Baking Co.*, 386 U.S. 685, 702 (1967). In *Utah Pie*, the Court admonished the appellate court for

plac[ing] heavy emphasis on the fact that Utah Pie [the firm that charged its rivals with unlawful price discrimination] constantly increased its sales volume and continued to make a profit . . . [W]e disagree with [the] view that there is no reasonably possible injury to competition as long as the volume of sales in a particular market is expanding and at least some of the competitors in the market continue to operate at a profit.

Id.; accord, *National Dairy Prods. Corp. v. FTC*, 412 F.2d 605, 618 (7th Cir. 1969) (commission warranted in finding that "petitioner failed to use its competitive power fairly").

⁸⁴ We have said enough about the great hold that the defendants have on this market. The percentage [89%] is so high as to justify the finding of monopoly. And, as the facts already related indicate, this monopoly was achieved in large part by unlawful and exclusionary practices Pricing practices that contained competitors were [one example].

United States v. Grinnell Corp., 384 U.S. 563, 576 (1966). This emphasis on structural factors is consistent with the need to demonstrate the existence of a monopoly in the relevant market to sustain a violation of § 2 of the Sherman Act based on monopolizing conduct. *Id.* at 570-71.

⁸⁵ Cf. *Utah Pie Co. v. Continental Baking Co.*, 386 U.S. at 699-700 (competitor who is forced to lower prices in face of predation eventually becomes less effective competitive force).

case—depended upon whether the claim arose under the Sherman Act or the Robinson-Patman Act.⁸⁶

2. *The Current Legal Standards*

The pre-1975 legal standard produced lengthy and complex litigations. Moreover, the Robinson-Patman Act was repeatedly criticized for protecting inefficient competitors at the expense of consumers.⁸⁷ It was in this setting that Areeda and Turner proposed their marginal cost pricing rule in 1975. In place of a complex and increasingly controversial doctrine, the Areeda-Turner rule offered a simple, bright-line standard purportedly grounded in basic economic theory. Under the assumptions of the elementary short run pricing model, it was analytically true that marginal cost pricing was socially optimal economic behavior. Thus, it logically followed that only a price below marginal cost should be condemned as predatory. There were, of course, practical problems in ascertaining marginal cost because it could not be derived simply from a firm's accounting statements.⁸⁸ But Areeda and Turner urged that courts needed only to substitute average variable cost as a proxy for marginal cost to overcome that difficulty. Thus, the marginal cost/average variable cost standard seemingly offered a simple solution to the perplexities of predatory pricing founded on the assurances of economic science.⁸⁹

a. *Judicial Reservations.* Following the 1975 article by Areeda and Turner, the courts initially embraced the marginal cost pric-

⁸⁶ See *United States v. Grinnell Corp.*, 384 U.S. 563 (1966) (Sherman Act); *Continental Baking Co. v. Old Homestead Bread Co.*, 476 F.2d 97 (10th Cir. 1973) (Robinson-Patman Act); *National Dairy Prods. Corp. v. FTC*, 412 F.2d 605 (7th Cir. 1969) (Robinson-Patman Act); *United States v. United Shoe Mach. Corp.*, 110 F. Supp. 295 (D. Mass. 1953), *aff'd per curiam*, 347 U.S. 521 (1954) (Sherman Act).

⁸⁷ See C. EDWARDS, *THE PRICE DISCRIMINATION LAW* 630 (1959); Elman, *The Robinson-Patman Act and Antitrust Policy: A Time for Reappraisal*, 42 WASH. L. REV. 1, 4-9 (1966).

⁸⁸ Indeed, proponents of the marginal cost rule apparently ignored the extended history of adverse experience with the cost-justification provision of the Robinson-Patman Act. See *Automatic Canteen Co. v. FTC*, 346 U.S. 61, 68 (1953) ("elusiveness of cost data"); ADVISORY COMM. ON COST JUSTIFICATION, REPORT TO THE FEDERAL TRADE COMM'N (1956); F. ROWE, *PRICE DISCRIMINATION UNDER THE ROBINSON-PATMAN ACT* 266 (1962) (cost justification "complex and frustrating in practice"); H. TAGGART, *COST JUSTIFICATION* (1959). See generally Fuchs, *The Requirement of Exactness in the Justification of Price and Service Differentials Under the Robinson-Patman Act*, 30 TEXAS L. REV. 1 (1951).

⁸⁹ At least one commentator suggested the possibility of using a marginal cost/average variable cost standard for predatory pricing as early as 1965. See McGee, *Some Economic Issues in Robinson-Patman Land*, 30 LAW & CONTEMP. PROB. 530, 549 (1965) (brief reference to average variable cost as possible predatory pricing standard). Areeda and Turner, however, are responsible for the first developed proposal advocating the marginal cost standard in predatory pricing cases.

ing rule, but subsequently pulled back in the face of increasing economic criticism and litigation difficulties. Several factors influenced this judicial retreat. First, the marginal cost rule proved more difficult to apply than anticipated. Cost determination—however cost is defined—is an inherently complex matter for proof in a legal proceeding. In addition, it became clear that average variable cost was an imperfect proxy for marginal cost. Additional complex adjustments were required to prevent results grossly at variance with the economic theory underlying the marginal cost standard. Second, courts experienced difficulty applying the economic concepts involved in the marginal cost standard. Some judges, perhaps, only partly understood these concepts and thus made analytical economic errors.⁹⁰ Because the more precise marginal cost standard removed the flexibility inherent in the fairness and reasonableness criteria that had been previously used, such errors could be result-decisive.⁹¹ Third, and perhaps most serious, the apparent economic consensus dissolved. As discussed in Part I, several economic writers rejected the short run marginal cost rule, even on efficiency grounds, and proposed alternative rules. Consequently, courts faced a bewildering array of possible economic standards. Finally, it became clear that the change to the marginal cost standard strongly favored defendants. The Areeda-Turner rule allowed courts to reverse jury findings favorable to plaintiffs and to enter directed verdicts for defendants. Indeed, no plaintiff has yet prevailed under the Areeda-Turner rule, and the rule has been called “a defendant’s paradise.”⁹² As a result, no single legal standard prevails in the lower federal courts—a situation apparently accepted by the Su-

⁹⁰ See, e.g., *Hanson v. Shell Oil Co.*, 541 F.2d 1352, 1358 n.6 (9th Cir. 1976), *cert. denied*, 429 U.S. 1074 (1977) (court erred in stating that pricing below average variable cost justified by acceptable business reasons because this price level is below shut-down point); *Williams Inglis & Son Baking Co. v. ITT Continental Baking Co.*, 461 F. Supp. 410, 418 (N.D. Cal. 1978) (court incorrectly claimed that excess capacity necessarily results in AVC exceeding MC; this occurs only at exceedingly low levels of production approaching shut-down point); *Weber v. Wynne*, 431 F. Supp. 1048, 1059 (D.N.J. 1977) (direct labor classified as fixed cost instead of variable cost).

⁹¹ See, e.g., *William Inglis & Son Baking Co. v. ITT Continental Baking Co.*, 461 F. Supp. 410 (N.D. Cal. 1978).

⁹² *Williamson*, *supra* note 48, at 305. See *Richter Concrete Corp. v. Hilltop Basic Resources, Inc.*, 5 TRADE REG. REP. (CCH) ¶ 63,947, at 75,887 (S.D. Ohio, April 7, 1981) (quoting *Williamson*); *Transamerica Computer Co. v. IBM Corp.*, 481 F. Supp. 965, 995 (N.D. Cal. 1979) (same). *But cf.* *Borden, Inc.*, 92 F.T.C. 669, 815, [1976-1979 Transfer Binder] TRADE REG. REP. (CCH) ¶ 21,490, at 21,516 (1978) (Clanton, Comm’r, concurring) (although Areeda-Turner standard violated by price reductions, majority held conduct unlawful on other grounds).

preme Court, which has repeatedly denied certiorari in predatory pricing cases.⁹³

b. *Three Alternative Legal Approaches.* With minor semantic variations, the legal standards enunciated by the courts since 1975 fall into three categories:

1. *The marginal cost standard.* Pricing below marginal cost or average variable cost is unlawful; pricing above marginal cost or average variable cost is lawful. This is the Areeda-Turner rule.⁹⁴

2. *Augmented marginal cost standards.* Although pricing below marginal cost remains unlawful, pricing *above* marginal cost may also be unlawful under the following conditions:

a. *The high entry barriers exception:* Pricing above marginal cost is unlawful when entry barriers are "extremely high" and the price is below the "short run profit maximizing price."⁹⁵

b. *The marginal cost-plus-other-factors standard:* Pricing above marginal cost is unlawful when other probative factors demonstrate that the price is predatory; these factors may include intent, limit pricing, non-price predation, and entry barriers.⁹⁶

3. *The average total cost standard.* Pricing below average total cost or "full cost" (average cost plus capital return) is unlawful when, in light of all facts, the price is unreasonable or predatory.⁹⁷

⁹³ See, e.g., *Janich Bros., Inc. v. American Distilling Co.*, 570 F.2d 848 (9th Cir. 1977), *cert. denied*, 439 U.S. 829 (1978); *Pacific Eng'r Prod. Co. v. Kerr-McGee Corp.*, 551 F.2d 790 (10th Cir.), *cert. denied*, 434 U.S. 879 (1977); *International Air Indus., Inc. v. American Excelsior Co.*, 517 F.2d 714 (5th Cir. 1975), *cert. denied*, 424 U.S. 943 (1976).

⁹⁴ See *Robert's Waikiki U-Drive, Inc. v. Budget Rent-A-Car Systems, Inc.*, 491 F. Supp. 1199, 1221-22 (D. Haw. 1980); *Murphy Tugboat Co. v. Crowley*, 454 F. Supp. 847, 853-56 (N.D. Cal. 1978); *Weber v. Wynne*, 431 F. Supp. 1048, 1058-59 (D.N.J. 1977).

⁹⁵ See note 16 *supra*. In *Borden, Inc.*, 92 F.T.C. 669, 823-24, [1976-1979 Transfer Binder] TRADE REG. REP. (CCH) ¶ 21,490, at 21,520 (1978) (Pitofsky, Comm'r, concurring), a possible variation from this standard was advocated that would apply when entry barriers are based on decisive advertising and promotional cost advantages. If these advantages exist, Commissioner Pitofsky argued that the pricing standard should be average total cost rather than the short run profit maximizing price. Pitofsky supported this claim by relying on the high entry barriers exception.

⁹⁶ See *Chillicothe Sand & Gravel Co. v. Martin Marietta Corp.*, 615 F.2d 427 (7th Cir. 1980); *California Computer Prods., Inc. v. IBM Corp.*, 613 F.2d 717 (9th Cir. 1979); *Pacific Eng'r & Prod. Co. v. Kerr-McGee Corp.*, 551 F.2d 790 (10th Cir.), *cert. denied*, 434 U.S. 879 (1977). The *Pacific Eng'r* court used language that could be construed as an outright rejection of a cost-based test. 551 F.2d at 797. This language, however, was accompanied by a discussion of facts demonstrating that the alleged predator's price was above marginal cost. Thus, the issue in this case was actually similar to that of other cases utilizing the marginal cost plus other factors test—whether additional factors may be introduced to challenge as predatory a price above marginal cost. See *id.*

⁹⁷ See *Barry Wright Corp. v. ITT Grinnell Corp.*, No. 78-485-S, slip op. at 16-17 (D. Mass., Feb. 26, 1981); *Richter Concrete Corp. v. Hilltop Basic Resources, Inc.*, 5 TRADE REG. REP. (CCH) ¶ 63,947 (S.D. Ohio April 7, 1981); *Transamerica Computer Co. v.*

c. *Connecting Economic Theories to Legal Standards.* To understand the impact of the economic theories of predation, it is necessary to relate them to the various legal standards. The marginal cost standard, which is derived from the non-linear cost model of Figure 2, virtually incorporates the Areeda-Turner rule.⁹⁸ Other economic theories, although frequently relying on the concept, do not view marginal cost as the single criterion for predatory pricing.⁹⁹

The "high entry barriers exception," which defines a price as predatory if it is below the short run profit maximizing level and if entry barriers are extremely high, is based on the simple, linear cost model of Figure 1. The problem in applying this legal standard is that the presence of its two preconditions—high entry barriers and pricing below the short run profit maximizing level—is difficult to ascertain. Economic theories provide limited assistance in determining when entry barriers are high. Indeed, only Joskow and Klevorick explicitly suggest criteria for ascertaining entry barriers.¹⁰⁰ Although their discussion is sound in theory, it provides little help to courts that are actually faced with determining whether entry barriers are high.¹⁰¹

IBM Corp., 481 F. Supp. 965 (N.D. Cal. 1979); *O. Hommel Co. v. Ferro Corp.*, 472 F. Supp. 793 (W.D. Pa. 1979); *Borden Inc.*, 92 F.T.C. 669, 987 [1976-1979 Transfer Binder] TRADE REG. REP. (CCH) ¶ 21,490 (1978). *But see* *Pierce Packing Co. v. John Morrell & Co.*, 633 F.2d 1362, 1367 (9th Cir. 1980) (*Transamerica* interpreted as allowing consideration of non-price factors only when "direct proof of specific intent or direct proof of a dangerous probability of success" exists).

⁹⁸ Although they have adopted the basic tenets of the Areeda-Turner theory, several courts have not accorded it the per se qualities envisaged by the authors. *See* *Hanson v. Shell Oil Co.*, 541 F.2d 1352, 1359 n.6 (9th Cir. 1976), *cert. denied*, 429 U.S. 1074 (1977) (pricing below average variable cost only establishes prima facie case of predation); *International Air Indus., Inc. v. American Excelsior Co.*, 517 F.2d 714, 724-25 n.31 (5th Cir. 1975), *cert. denied*, 424 U.S. 943 (1976) (when entry barriers are high, apply short run profit maximizing standard). The refusal to accord the Areeda-Turner rule per se qualities, however, has little practical effect; plaintiffs have uniformly failed to prevail whenever the court adopted some form of the Areeda-Turner standard. *Cf.* *Borden, Inc.*, 92 F.T.C. 669 & n.29, [1976-1979 Transfer Binder] TRADE REG. REP. (CCH) ¶ 21,490 (1978) (FTC grants relief to plaintiff after specifically declining to adopt the Areeda-Turner standard as the exclusive or even the preferred test for predatory pricing).

⁹⁹ The rules proposed by Posner, Scherer, and Joskow & Klevorick generally permit marginal cost (or average variable cost) pricing under conditions of excess capacity. *See* text accompanying notes 64-66 (Posner), 70-72 (Joskow & Klevorick), and 75-78 (Scherer) *supra*.

¹⁰⁰ *See* Joskow and Klevorick, *supra* note 50, at 227-31.

¹⁰¹ Under the Joskow and Klevorick approach, "conditions of entry" (entry barriers) must be assessed before determining whether a market is monopolistic. This assessment of entry barriers requires an extensive inquiry into such issues as concentration, demand elasticity, and response of potential competition to prices above competitive level. It is unlikely, however, that the courts could feasibly undertake an inquiry into entry conditions at this level of sophistication.

Economic theory is more useful in ascertaining whether the second requirement of the high entry barriers exception is met—a price below the short run profit maximizing level. Although the courts have prescribed no clear test, Baumol suggests an effective approach. Under the Baumol rule, predation is indicated by the subsequent reversal of an earlier price reduction when not justified by external changes in the economic environment (*e.g.*, changes in cost or demand).¹⁰² It follows that unless the subsequent price increase can be explained by new economic developments, the previous price was necessarily below the firm's profit maximizing level. Thus, an unjustified reversal of a price reduction provides an effective test for discovering pricing below the profit maximizing level.¹⁰³

Under the marginal-cost-plus-other-factors standard, as recently enunciated by two circuits,¹⁰⁴ marginal cost, although an important factor in the legal standard, must be considered along with "other relevant factors."¹⁰⁵ The courts that have used the marginal-cost-plus-other-factors standard have cited most of the previously discussed economic theorists, thus demonstrating that the full range of economic theories is relevant for argumentation when this standard is applied.

The average total cost standard offers almost as much freedom to incorporate varying economic theories. Average total cost is a key factor in all theories except Areeda and Turner's. Thus,

Probably, the only test for entry barriers suitable for judicial use is the actual frequency or infrequency of entry in an industry. See 4 P. AREEDA & D. TURNER, *supra* note 18, ¶ 917b; Brodley, *Potential Competition Mergers: A Structural Synthesis*, 87 YALE L.J. 1, 79 & n.327 (1977). Lack of entry, however, is potentially explained by factors other than high entry barriers; thus, this test alone is not sufficient proof of the actual entry conditions.

¹⁰² See text accompanying note 74 *supra*.

¹⁰³ In *International Air Indus., Inc. v. American Excelsior Co.*, 517 F.2d 714, 725 n.34 (5th Cir. 1975), *cert. denied*, 424 U.S. 943 (1976), the trial court considered testimony by the alleged predator's sales manager that price had been set at a profit maximizing level. This approach, however, is highly unsatisfactory because a business manager could "truthfully" testify that any price designed to eliminate competitors was profit maximizing. In *Borden, Inc.*, 92 F.T.C. 669, 826-31, [1976-1979 Transfer Binder] TRADE REG. REP. (CCH) ¶ 21,490, at 21,522-24 (1978) (concurring), Commissioner Pitofsky, in rejecting the average variable cost rule, inferred from the facts of this case that sales below average total cost were below the profit maximizing level. Sales below average total cost, however, do not conclusively demonstrate a non-profit maximizing price. If market demand has fallen, the short run profit maximizing (or loss minimizing) point may be below average total cost.

¹⁰⁴ See *Chillicothe Sand & Gravel Co. v. Martin Marietta Corp.*, 615 F.2d 427, 432 (7th Cir. 1980); *California Computer Prods., Inc. v. IBM Corp.*, 613 F.2d 727, 743 (9th Cir. 1979).

¹⁰⁵ *Pacific Eng'g & Prod. Co. v. Kerr-McGee Corp.*, 551 F.2d 790, 797 (10th Cir.), *cert. denied*, 434 U.S. 879 (1977) (other factors to be considered when facts justify).

the economic issues raised by the average total cost standard are similar to those raised by the marginal-cost-plus-other-factors standard. The only economic difference is the starting point for analysis. Under the marginal-cost-plus-other-factors standard, marginal cost is the starting point for analysis; the average total cost standard analysis, on the other hand, begins with average total cost. In both cases the cost standard may be augmented by similar extrinsic evidence of predation. It is conceivable, nevertheless, that the average total cost standard would give greater prominence to evidence of intent. This tendency is evident in some judicial decisions,¹⁰⁶ and at least one economic writer has explicitly coupled proof of intent with an average total cost test.¹⁰⁷ In general, however, the economic theories relevant to the average total cost standard are similar to those for the marginal-cost-plus-other-factors standard.¹⁰⁸

B. *Application of Economic Theories*

The best way to understand the impact of the various economic theories and rules is to examine their application in a specific factual setting. This section analyzes such applications in two distinct factual situations. Case 1 involves price reductions under conditions of weak demand and chronic excess capacity. Case 2 involves price cutting in response to multiple entry by smaller firms under sustained competition in a high technology industry. In each case, a discussion of the basic facts is followed by a summary of judicial rulings on similar facts. The applications of economic analysis and the various economic rules to these facts are then outlined and compared.

¹⁰⁶ See, e.g., *Transamerica Computer Co. v. IBM Corp.*, 481 F. Supp. 965, 996 (N.D. Cal. 1979) (intent evidence relevant to establish reasonableness of price below average total cost); *Richter Concrete Corp. v. Hilltop Basic Resources, Inc.*, 5 TRADE REG. REP. (CCH) ¶ 63,947, at 75,887-88 & n.9 (S.D. Ohio April 7, 1981) (intent evidence as explanatory of whether pricing below average total cost is predatory). See also *Barry Wright Corp. v. ITT Grinnell Corp.*, No. 78-485-S, slip op. at 16-17 (D. Mass., Feb. 26, 1981); *O. Hommel Co. v. Ferro Corp.*, 471 F. Supp. 793 (W.D. Pa. 1979); *Borden, Inc.*, 92 F.T.C. 669, 805, [1976-1979 Transfer Binder] TRADE REG. REP. (CCH) ¶ 21,490, at 21,510 (1978).

¹⁰⁷ See R. POSNER, *supra* note 11, at 189-90.

¹⁰⁸ Whether an alleged predator is better off under the marginal-cost-plus, or average total cost rules depends upon the strength of market demand in relation to cost. When demand is weak (line D_2D_2 in Figure 3) and excess capacity exists, a predator firm will benefit from the marginal cost rule because price often falls below average cost but remains above marginal cost in this situation. The situation is reversed, however, when demand is strong (line D_1D_1 in Figure 3). The predator firm benefits from application of the average total cost rule in this situation because price may fall below marginal cost but remain above average cost.

1. *CASE 1: Dominant Firm Pricing with Excess Capacity*

a. *Basic Facts.* In 1961 there were four manufacturers of the chemical oxidizer used in solid rocket fuel. For nine years, the manufacturers engaged in severe price competition, usually initiated by the dominant firm, and by 1970 only one other firm, in addition to the dominant firm, remained in the market. During this nine year period, prices fell from thirty-five cents per pound to fifteen cents per pound—well below the dominant firm's average total cost but still above its average variable cost. Even though the fifteen cents per pound price was in effect for only a brief period, the overall price level remained below average *total* cost for seven years. Demand also fell sharply during this nine year period due to the technological replacement of solid fuel with liquid fuel. This created so much excess capacity that the dominant firm was capable of supplying, by itself, the entire market. Although in a technological sense it had no cost advantage over its rivals, the dominant firm's costs continuously fell over the range of the now reduced market output. These scale economies, combined with its increasing market share, inevitably led to lower average variable and total costs for the dominant firm. After two firms terminated their operations, the lone remaining competitor commenced litigation alleging an unlawful attempt to monopolize and monopolization. The competitor firm argued that the dominant firm's surveillance of the competitor, its opposition before government agencies to the competitor's attempt to classify itself as a small business eligible for special benefits under federal law, and its statements indicating that it would raise price after the competitor left the market demonstrated the dominant firm's predatory intent. In addition, the dominant firm was a large, diversified firm whereas the competitor was undiversified and thinly capitalized. Customers who were unhappy with the prospect of dependence on a single firm for rocket fuel supplies offered economic support to the competitor, but to no avail. Only a government subsidy prevented the competitor's departure from the market.

b. *Judicial Ruling.* Ruling on similar facts, the Tenth Circuit reversed a lower court finding for the plaintiff and entered judgment for the defendant.¹⁰⁹ Applying the Areeda-Turner test, the court found that the dominant firm's prices were above both its average variable cost and marginal cost and thus were non-

¹⁰⁹ *Pacific Eng'r & Prod. Co. v. Kerr-McGee Corp.*, 551 F.2d 790 (10th Cir.), *cert. denied*, 434 U.S. 879 (1977).

predatory under the marginal cost rule.¹¹⁰ The court did not, however, base its holding solely on the marginal cost test. It also scrutinized the record for other relevant factors that might demonstrate that the dominant firm's conduct was anticompetitive in the long run.¹¹¹ The court found no such factors, noting that this was not a case of short run price cutting to earn monopoly profits in the long run, because the low price persisted for seven years. The court reasoned that under this condition of chronic excess capacity, marginal cost pricing below full cost was inevitable and, indeed, was economically desirable because it freed the industry of wasteful excess capacity.

c. *Applying Economic Theories.* This section considers the application of the previously discussed economic rules to the specific facts of Case 1. The facts are analyzed from the litigant's perspective and arguments for both plaintiffs (competitor firms) and defendants (dominant firms) are outlined. Because judicial application of most of the proposed rules is limited or nonexistent, the following analysis plows new ground.¹¹²

The Areeda-Turner Rule. The Areeda-Turner rule clearly indicates that the pricing in Case 1 should be held lawful because it was above both marginal cost and average variable cost (the proxy for marginal cost). Indeed, Areeda and Turner endorse the result in Case 1. They consider pricing below full cost justified under a condition of excess capacity, reasoning that such pricing is doubly beneficial because it rids the industry of excess productive capacity and lowers immediate production costs.¹¹³

The clarity and simplicity of this analysis is possible, however, only because the dominant firm's price was above both marginal cost and average variable cost. This is not inevitable in every case. Particularly when excess capacity exists, price may be above only one of these two cost measurements. A potentially troublesome problem arises when price is either below marginal cost but above average variable cost, or above marginal cost but below average variable cost.¹¹⁴ In both situations, the price is economically un-

¹¹⁰ *Id.* at 797.

¹¹¹ *Id.*

¹¹² *But see* E.I. duPont de Nemours & Co., — F.T.C. —, 3 TRADE REG. REP. (CCH) ¶ 21,770, at 21,980-81 (Oct. 20, 1980) (analysis of predatory pricing facts under several economic theories).

¹¹³ *See* 3 P. AREEDA & D. TURNER, *supra* note 18, ¶ 715a.

¹¹⁴ In the first instance, when price is below marginal cost but above average variable cost, average variable cost creates a price floor that is too low and thus theoretically unjustified. Acknowledging this problem, Areeda and Turner require the monopolist that relies on a defense of price above average variable cost to demonstrate that marginal cost did not

justified and will usually be unlawful under the Areeda-Turner rule. Thus, under conditions of excess capacity, the Areeda-Turner rule requires the plaintiff to ascertain both marginal cost and average variable cost in order to demonstrate the illegality of a particular price.

The Posner Rule. The Posner rule defines as predatory a price either below short run marginal cost or below long run marginal cost when accompanied by an intent to exclude an equally efficient competitor. The facts of Case 1 could support a finding of intent to exclude.¹¹⁵ Thus, the chief issue in this case under the Posner rule is the proper measure of cost. Because there was excess capacity, short run marginal cost might appear to be the appropriate standard. As Posner notes, it makes no sense to require a producer to charge customers for depreciation of a plant that it will never replace.¹¹⁶ But is it correct to assume that no portion of the plant will ever be replaced? Suppose there is some permanent level of demand that will continue indefinitely. The issue then is whether the current level of output physically depreciates on capacity that is needed over the long run.¹¹⁷ If so, revenues from incremental output should cover long run marginal cost. In that event, long run marginal cost, not short run marginal cost as Posner suggests in the case of excess capacity, should become the appropriate cost standard.

Such an argument by a plaintiff, if justified by the facts, appears theoretically sound. The defendant can respond, how-

"significantly exceed" average variable cost at that output. *Id.* ¶ 715d, at 176. On the other hand, when price is below average variable cost but above marginal cost, the marginal cost floor is too low because price has fallen below the shut-down point, *i.e.*, the minimum point on the average variable cost curve. No price below the shut-down point, even when above marginal cost, is economically justified because the firm's full current revenues no longer cover its full current costs. A firm will minimize losses at this point only by shutting down. The court in *William Inglis & Son Baking Co. v. ITT Continental Baking Co.*, 461 F. Supp. 410, 418-19 (N.D. Cal. 1978), overlooked this point by holding that a price below average variable cost is not unlawful unless it is also below marginal cost. The *Inglis* holding thus effectively sanctions pricing below the shut-down level. This conclusion is easily verified by referring to Figures 2 and 3 *supra*.

¹¹⁵ Indeed, the lower court, in ruling for the plaintiff, made such a finding. *Pacific Eng'r Prod. Co. v. Kerr-McGee Corp.*, 551 F.2d at 794-95.

¹¹⁶ See R. POSNER, *supra* note 11, at 189.

¹¹⁷ The following simple example will illustrate this point. Assume that current capacity is 100 units but that over the long run only 25 units of capacity will be retained. If desired current output is 60 units, it can be produced without depreciating any portion of retained capacity. An efficient price in this situation need cover only variable costs. If, in contrast, desired current output is 80 units, then it will be necessary to utilize a portion of capacity which is to be retained. Assuming that use of capacity results in some physical depreciation of the capacity which would otherwise be usable in future periods, the true cost of the "marginal" unit must include the depreciation of capital, *i.e.*, long run marginal cost.

ever, by arguing that a feasible legal standard cannot possibly rest on the assessment of future market demand and that assessment of demand is required by the conclusion that a portion of the plant is to be replaced. Thus, a more detailed and discriminating classification for the excess capacity case than that suggested by Posner is impractical.

The Baumol Rule. Under the Baumol rule, a price reduction is predatory if, following such reduction, one or more firms leave the market and the dominant firm subsequently raises its price. The first condition of the Baumol rule is satisfied because two firms left the market during the period of price reductions (and the third firm arguably left the market as well because it was kept in business only by a government subsidy). One firm left the market when the price dropped to 14.92 cents.¹¹⁸ After that firm ceased operations, prices increased to between fifteen and twenty cents, although they were generally below 18.25 cents. The plaintiff competitor firm remained in the market, and was ultimately saved by a government plan that divided the market between the surviving firms at a profitable price. Thus, application of the Baumol rule in this situation turns on whether the modest price increase that followed the demise of one firm was justified. The plaintiff benefits in several ways by demonstrating a violation using the Baumol rule. First, cost determination becomes unnecessary. Second, the economic rationale behind the Baumol rule—to assure that the natural monopolist supplies the market at the lowest maintainable price—specifically addresses the natural monopoly condition in Case 1. Third, as discussed in more detail below, the Baumol theory provides a basis for arguing predation under other economic theories.

The defendant dominant firm can refute application of the Baumol rule by arguing that changes in cost and demand fully justify the modest price increase, and more fundamentally that the Baumol theory is unsuitable in predatory pricing cases. The first argument is purely factual. Inflationary factors alone, for example, may justify the moderately higher price. The second argument, pertaining to the general unsuitability of the Baumol rule, is based on the administrative difficulties inherent in a standard that defines allowable price in terms of future estimates of cost and demand. Donald Turner believes that the Baumol rule forces

¹¹⁸ The other firm ceased operations in the preceding year before price declined to the low point of 14.92 cents. *Pacific Eng'r & Prod. Co. v. Kerr-McGee Corp.*, 551 F.2d at 792.

courts to assume a "quasi" price regulatory role."¹¹⁹ Although Baumol has offered a rebuttal,¹²⁰ this objection may nevertheless persuade overburdened courts. Commentators have made several additional, but less significant, criticisms of the Baumol rule.¹²¹

The Joskow-Klevorick Rule. Plaintiff's theory under the Joskow-Klevorick rule is subtle but nevertheless fully comports with the spirit of the rule. The Joskow-Klevorick rule states that dominant firm price reductions in monopolistic markets are presumptively predatory under any of three conditions. The first condition—pricing below average variable cost—is not pertinent to the facts of Case 1. The second condition—pricing below average total cost—is present in Case 1. Pricing below average total cost is excused, however, under conditions of excess capacity as long as price remains above average variable cost *and* the price reduction maximizes short run profits. These exceptions are relevant to Case 1 because the industry involved was plagued with excess capacity. In Case 1, the first exception—pricing above average variable cost—is met because price in fact remained above average variable cost. The second exception—short run profit maximizing at the reduced price—is not explicitly defined by Joskow and Klevorick but can be given meaning under their third condi-

¹¹⁹ See Baumol, *supra* note 74, at 6 n.18 (letter from Donald F. Turner to William J. Baumol, Sept. 28, 1978).

Cost factors for the multi-market firm may involve difficult allocational issues. Demand factors are even more complex for multi-market firms because they involve a relationship between price and marginal cost that varies with the shape of the demand function. Although Baumol notes that a price change need not be justified by a "knife's-edge criterion of ideal pricing," even a rough justification based on demand is burdensome. *Id.* at 7.

¹²⁰ Baumol stresses that the price change rule does not require a meticulous, dollar-for-dollar justification such as that used under the Robinson-Patman Act cost-justification defense. Instead, the rule requires only a rough showing that the cost change was "of the same order of magnitude" as the price change. *Id.* at 6 n.18. A similar justification for price increases following price reductions is also required under the Mann-Elkins Act, ch. 308, § 7, 36 Stat. 544 (1910) (current version at 49 U.S.C. § 10701 (Supp. III 1979)). See B. OWEN & R. BRAEUTIGAM, *THE REGULATION GAME* 163-65 (1978).

¹²¹ See 3 P. AREEDA & D. TURNER, *supra* note 18, ¶ 714c2 (rule would discourage price reductions, encourage entry of inefficient firms, and prevent price increases by monopoly when demand has fallen); Joskow & Klevorick, *supra* note 50, at 256-58 (large, diversified firm can still achieve demonstration effect in single, limited market). Joskow and Klevorick's objection, however, is not applicable to the facts of Case 1. Although potentially applicable to the facts of Case 1, Areeda and Turner's objections are somewhat strained. For example, it is difficult to condemn the Baumol rule as discouraging price reductions. The rule is designed to discourage price *increases* only after a firm has left the market in the wake of a price reduction. Similarly, it is unlikely that any firm—efficient or inefficient—is willing to enter an industry plagued by falling demand and excess capacity such as that depicted by Case 1.

tion: price reductions *above* average total cost are presumptively predatory if reversed within two years. The third condition states that even the least suspect of price reductions—one that remains above average total cost—is predatory and hence not profit maximizing in the short run if reversed by the dominant firm within two years. Relying on the third Joskow-Klevorick condition, plaintiff could reasonably assert that the subsequent reversal of a price below average total cost necessarily indicates that the lower price did not maximize short run profits. Thus, the dominant firm's pricing below average total cost in Case 1 is not excused under the second Joskow-Klevorick condition, and the price reduction was therefore predatory notwithstanding the existence of excess capacity.

Defendant could refute this argument in several ways. First, it is debatable whether the market in Case 1 satisfied the Joskow-Klevorick prerequisite (or "first tier test") for predatory pricing—a monopolistic market condition. It appears that the market in Case 1 falls within an intermediate zone between markets classified as monopolistic and those classified as competitive.¹²² Second, as with the Baumol rule, a presumptively unlawful price reduction can be justified by a showing of changed economic conditions. Thus, the defendant could argue that inflation or other factors fully explain the modest price increase. Third, all of the objections mentioned above against the Baumol rule also can be raised against the Joskow-Klevorick rule, because it expressly incorporates the Baumol rule.¹²³

The Scherer Rule. A court applying the Scherer rule-of-reason approach considers all factors affecting long term social welfare, especially predatory intent. The facts of Case 1 present a solid argument for inferring predatory intent. The dominant firm's surveillance activities, its active opposition to the competitor firm's application for small business assistance before a government agency, and most significant, its expressed intention to raise price when the competitor was eliminated all support an inference of predatory intent. A subsequent price reversal would further strengthen the intent argument.

¹²² This market may be accurately characterized as highly concentrated. In addition, entry is not likely because of the large amount of excess capacity. Very little pricing power is evident, however, because of this excess capacity. If demand strengthened, entry into the market could occur again as it had in the past. See *Pacific Eng'r & Prod. Co. v. Kerr-McGee Corp.*, 551 F.2d 790, 791 (10th Cir.), *cert. denied*, 434 U.S. 879 (1977).

¹²³ Joskow and Klevorick slightly modify the Baumol rule, however, by eliminating the condition that the victim had been forced from the market.

The defendant dominant firm has ample opportunity under the Scherer rule to rebut plaintiff's arguments. For example, the defendant could argue that its activities constituted nothing more than survival efforts in a market no longer capable of supporting more than one firm, or that it did not initiate all of the price changes but set its price only in response to the market level. The subjective characteristic of intent and the weight it receives under the Scherer rule, however, may substantially deter an appellate court from upsetting a lower court's finding of predation.¹²⁴

d. *Summary.* Most commentators approve the Tenth Circuit's decision in Case 1. It seemed economically inevitable that either the competitor firm or the dominant firm would have been forced to leave the market. Moreover, that the excluded firm would be the competitor appeared equally inevitable, considering that both firms were determined to remain in the market, neither held a cost advantage over the other, and the dominant firm possessed greater resources and staying power. Thus, the only issue was whether unlawful predatory means hastened the inevitable.

Having examined the five economic theories that a plaintiff could arguably invoke under the facts of Case 1, it seems clear that plaintiff's case remains weak. Only the Scherer theory offers an appreciable chance of success. The rule-of-reason approach is the most favorable to the plaintiff because it places the greatest weight on predatory intent—an issue decided in the plaintiff's favor by the lower court. The rule-of-reason standard could be connected with either the marginal-cost-plus-other-factors standard or the average total cost standard. The marginal-cost-plus-other-factors standard is less favorable to a plaintiff, however, because a price level above marginal cost (or average variable cost) is a factor favorable to a defendant even though that price may be below average total cost. Below average total cost pricing is, of course, an unfavorable factor under the average total cost standard. Even under the most advantageous legal standard, however, it is unlikely that plaintiff could sustain a favorable ruling on appeal unless it could demonstrate that the price reductions were substantially reversed.

¹²⁴ *But cf.* *Pacific Eng'r & Prod. Co. v. Kerr-McGee Corp.*, 551 F.2d at 794-95 (although not explicitly rejecting lower court finding of predatory intent, appellate court held that there was no violation of Sherman Act).

Although his model, which deals with the firm that strategically selects a plant size to preclude entry by competitors, is not directly applicable to these facts, Williamson does adhere to the average variable cost test of predation in situations of declining demand. *See* Williamson, *supra* note 48, at 322-23.

Other economic theories confront the plaintiff with even more difficult problems. The Posner rule, which defines predation in terms of sales below relevant marginal cost and intent to exclude, depends upon a proper allocation between short and long run marginal costs. But establishing the appropriate allocation may create difficult evidentiary problems during litigation. Neither can plaintiff find solace in the Baumol, and Joskow-Klevorick rules, which define predation as an unjustified reversal of a previous price reduction; in Case 1, the modest subsequent price increase is probably justified by cost increases. Moreover, no judicial decision currently supports the application of either rule, and the problematic facts of Case 1 are unlikely to provide the basis for a new precedent.

Thus, the exploration of various economic theories in connection with Case 1 supports the Tenth Circuit's result. At the same time, the analysis suggests that, despite the distressed condition of the market, the strong conclusion that predation was absent depends upon the fact that the price reduction was not *substantially* reversed. If in fact the price reduction had been substantially reversed, plaintiff could have made a viable claim under the Baumol, Joskow-Klevorick, and Scherer rules, and arguably also under the Posner rule.

2. CASE 2: Dominant Firm Pricing Under Sustained Competition

a. *Facts.* The dominant firm, a full line computer manufacturer, has a monopoly position in both the main frame and peripheral equipment computer markets. Peripheral equipment consists of various attachment devices, like add-on memory units, which are plugged onto the main frame. No substantial barriers impede entry into the peripheral equipment market, and several firms have entered in the last few years. As a result, the dominant firm's market share of peripherals declined precipitously. In a deliberate plan to recapture market share, the dominant firm selectively reduced price in markets where competitive inroads had been made, keying these price reductions to the loss of market share. This reduced the dominant firm's profit margin in some markets from fifty percent above average total cost to twenty percent. To compute its costs, the dominant firm used a "revenue apportionment formula" which assigned fifty percent of the costs in direct proportion to sales revenues received. The dominant firm also used an accelerated depreciation accounting method, resulting in the sale of substantial amounts of reconditioned equip-

ment at extremely low prices (but still above book costs). The price reduction did not force other peripheral manufacturers to leave the market, but it severely reduced their profits. The dominant firm also raised its prices on main frame units, where its dominance continued unchallenged. It did not subsequently raise its price on peripherals.

b. *Judicial Ruling.* Case 2 is a simplified factual version of several recent decisions involving antitrust challenges to pricing practices in the computer software industry.¹²⁵ Finding no basis for predatory pricing under any legal theory, the courts have uniformly ruled for the defendant dominant firm.¹²⁶ The courts held that neither the strict marginal cost rule nor the average variable cost rule supported the predatory pricing claims because price in each case remained well above average total cost and thus, by necessary inference, above marginal and average variable cost as well. The high entry barriers exception did not aid the plaintiff firms because their own entry into this market demonstrated that entry barriers were not high. The marginal-cost-plus-other-factors standard was not contravened because the dominant firm's sales were always above full cost and profitable.¹²⁷ In the absence of objective pricing misconduct, other factors, such as evidence of the dominant firm's predatory intent, became irrelevant to the predation issue.¹²⁸

Ruling on other specific issues presented in Case 2, the courts have rejected plaintiffs' attacks on particular accounting and pricing practices. Thus, one court held that the revenue apportionment formula could not be impeached because the dominant firm had adopted it prior to litigation and had followed it consistently, even though it facilitated price cutting by effec-

¹²⁵ See *California Computer Prods., Inc. v. IBM Corp.*, 613 F.2d 727 (9th Cir. 1979); *Transamerica Computer Co. v. IBM Corp.*, 481 F. Supp. 965 (N.D. Cal. 1979); *ILC Peripherals Leasing Corp. v. IBM Corp.*, 458 F. Supp. 423 (N.D. Cal. 1979) (The *ILC Peripherals* case is commonly referred to by the name of another party in the litigation—"Memorex").

¹²⁶ Indeed, the trial courts ruled with unusual decisiveness in two cases, granting the defendant dominant firm's motion for a directed verdict in *California Computer Prods., Inc. v. IBM Corp.*, 613 F.2d at 731, and in *ILC Peripherals Leasing Corp. v. IBM Corp.*, 458 F. Supp. at 426.

¹²⁷ See *California Computer Prods., Inc. v. IBM Corp.*, 613 F.2d at 739-41; *Transamerica Computer Co. v. IBM Corp.*, 481 F. Supp. at 996-1002; *ILC Peripherals Leasing Corp. v. IBM Corp.*, 458 F. Supp. at 432-33.

¹²⁸ *California Computer Prods., Inc. v. IBM Corp.*, 613 F.2d at 764; *Transamerica Computer Co. v. IBM Corp.*, 481 F. Supp. at 1008-09; *ILC Peripherals Leasing Corp. v. IBM Corp.*, 458 F. Supp. at 436-44.

tively reducing costs in direct proportion to revenue loss.¹²⁹ Another court noted that a price increase in the main frame market where the peripheral manufacturers did not compete with the dominant firm could not have injured the peripheral manufacturers so long as price remained above predatory levels in the markets where they did compete.¹³⁰ Creating a reverse implication to the "meeting the competition" defense under the Robinson-Patman Act,¹³¹ another court held that a price reduction which did no more than *meet* the lower price of a competitor was not predatory, irrespective of costs.¹³²

c. *Applying Economic Theories.* A cursory application of the economic rules to Case 2 suggests that the judicial decision is unassailable. It appears to be supported by almost all economic theories of predation, including the Areeda-Turner rule, the Posner rule, the Joskow-Klevorick rule, the Baumol rule, and possibly even the Williamson rule. Price remained above all relevant costs, thus eliminating liability under the various cost-based rules. Plaintiffs fare no better under the non-cost-based rules. The smaller firms were not forced out of the market, thus precluding liability under the Baumol rule. Similarly, it is probable that one or more of the Williamson rule requirements were not met because either the smaller firms may not have been "new entrants" at the time prices were reduced, or some or all of the sales may fall within the exception Williamson allows for generational equipment.¹³³ Viewed on their surface, the facts permit a plausible argument of liability only under Scherer's open ended rule-of-reason approach, with emphasis on intent. The case is not strong even under the rule-of-reason, however, because the smaller firms were not eliminated and market structure was not altered substantially.¹³⁴

A better understanding of economic analysis in predatory pricing cases is provided by examining how a plaintiff competitor firm could use appropriate economic rules to impeach this

¹²⁹ See *Transamerica Computer Co. v. IBM Corp.*, 481 F. Supp. at 998-99.

¹³⁰ See *California Computer Prods., Inc. v. IBM Corp.*, 613 F.2d at 745. The court specifically rejected plaintiff's claim that price increases in other markets were used to "offset" the losses sustained in the market for peripherals. *Id.*

¹³¹ See note 153 *infra*.

¹³² See *ILC Peripherals Leasing Corp. v. IBM Corp.*, 458 F. Supp. at 433-34. See also *Richter Concrete Corp. v. Hilltop Basic Resources, Inc.*, 5 TRADE REG. REP. (CCH) ¶ 63,947, at 75,889 (citing *ILC Peripherals* with approval).

¹³³ See *Williamson*, *supra* note 48, at 315-21.

¹³⁴ The linear cost model might also support this conclusion because price remained above cost regardless of the cost definition.

seemingly secure conclusion regarding lack of predation.¹³⁵ The following subsections analyze plaintiff's arguments and suggest some responses for defendant dominant firms.

Possible Violation of the Areeda-Turner Marginal Cost Rule. Although price was above average total cost and, therefore, above average variable cost, this does not necessarily imply that price was also above short run marginal cost. This is shown in Figure 7 (which is a partial reproduction of Figure 4). As illustrated in Figure 7, even a price above average *total* cost is not necessarily above marginal cost. Indeed, when marginal cost rises substantially above average total cost, pricing on an average total cost basis is socially inefficient even in the short run.¹³⁶ Allocative inefficiency results because the price or incremental revenue does not cover the incremental costs and there is over-consumption; thus, consumers no longer pay for the full value of the resources they consume. Areeda and Turner have recognized this possibility and they now require that price exceed marginal cost under these conditions.¹³⁷ Figure 7 illustrates the relevant Areeda-Turner pricing floor in solid lines.

It is unclear from the facts of Case 2 whether demand following the price reductions required a production level at which the dominant firm's marginal cost exceeded its average cost. Drastic price reductions (as large as sixty percent) substantially increased sales of this equipment.¹³⁸ These sales might have caused marginal cost to increase substantially above average total cost at the increased output level that followed the price reductions.

Plaintiff's burden in establishing the dominant firm's marginal cost—difficult even for a firm to ascertain internally (much less an adverse litigant)—severely limits the legal feasibility of this approach. Moreover, defendant could reestablish its claim of short run pricing efficiency by demonstrating that marginal cost was not significantly above average total cost either because industry demand was weak or because it possessed a large amount of excess capacity.¹³⁹

Possible Violations Based on Improper Calculation of Costs. Did the dominant firm's pricing appear not to violate one or more of the cost-based rules only because costs were improperly calculated?

¹³⁵ This is not intended as a comment on the actual IBM pricing practices; Case 2 is a severe simplification.

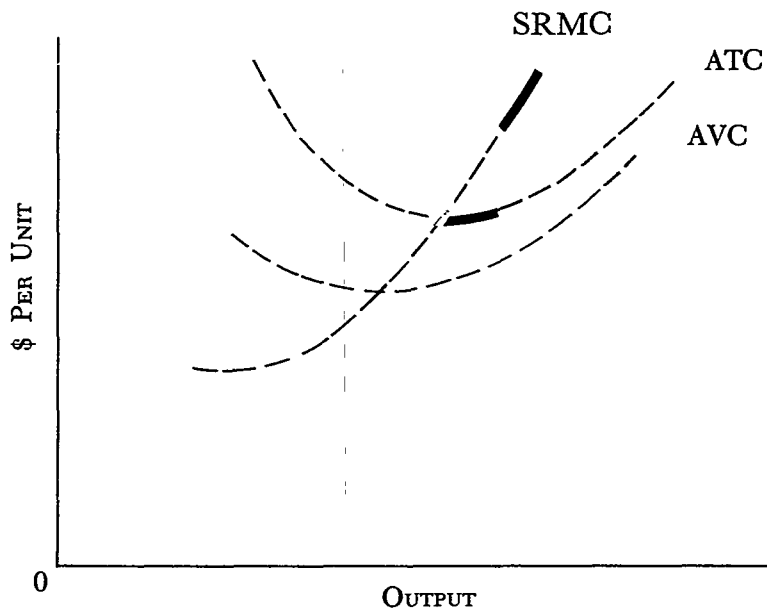
¹³⁶ See note 29 and accompanying text *supra*.

¹³⁷ Areeda & Turner, *supra* note 62, at 1338.

¹³⁸ See *California Computer Prods., Inc. v. IBM Corp.*, 613 F.2d at 739-40.

¹³⁹ See text accompanying notes 110-14 *supra*.

FIGURE 7

Marginal Cost Pricing Above Average Total Costs

Several long run cost-based standards adopt average total cost as a pricing standard. The Areeda-Turner rule also uses average total cost as its pricing floor when moderately strong demand exists. On first impression, it might appear futile for plaintiff to challenge the cost calculation in Case 2 because the dominant firm's price remained twenty percent above average total cost.

On the other hand, two economic arguments undermine the conclusion that the dominant firm's pricing resulted in an ample price-cost margin. First, the average total cost concept utilized in Case 2 does not contain a capital profit factor. Almost all judicial decisions and economic writers considering predatory pricing ignore the fact that the economic measure of average total cost, which is incorporated in predatory pricing rules, cannot be derived from a firm's accounting statement. Average total cost in economic terms encompasses not only those costs shown on the accounting statement, but also a sum as an imputed return to the capital invested in the business.¹⁴⁰ This economic measure is derived from the principle that the economic cost of an activity includes the cost of alternatives forgone, and capital invested in a business necessarily means the loss of opportunity to earn a re-

¹⁴⁰ Inclusion of a return on capital was recognized in *Transamerica Computer Co. v. IBM Corp.*, 481 F. Supp. at 1000-01, and in 3 P. AREEDA & D. TURNER, *supra* note 18, ¶ 714a.

turn elsewhere. Adding a "normal" return on invested capital to average total cost in Case 2 considerably narrows the twenty percent cost margin.¹⁴¹ Plaintiff could then attempt to challenge each questionable cost item because it would take only a slight upward adjustment to push average total cost above the price level.

The second economic argument reexamines several of the specific cost allocations made in Case 2. Assuming that average total cost is the relevant standard, plaintiff may assert that (1) the revenue allocation formula used by the dominant firm must be closely scrutinized, because it facilitates predatory pricing by enhancing the ability to reduce price without undercutting average total cost; (2) the highly accelerated depreciation taken by the dominant firm could easily exceed actual wear and tear plus equipment obsolescence, even taking into account the special factor of generational obsolescence in computer equipment, resulting in actual below cost sales of reconditioned equipment; and (3) the dominant firm's fixed costs¹⁴² should be computed on a replacement cost, rather than historic cost basis, because only replacement cost provides an economically correct measure of the value of goods consumed in an inflationary era.

The judicial decisions under Case 2 facts indicate that plaintiffs relied on the first two assertions. The arguments were rejected by the courts, however, because the evidence demonstrated that the revenue allocation formulae and depreciation methods were long-established, non-invidiously applied accounting procedures and thus provided an appropriate measure of "reasonably anticipated" cost.¹⁴³ Probing deeper, plaintiff could emphasize that strategic adaptation effects would follow if any plausible accounting procedure were subject to unquestioned acceptance. Although an accounting system must serve a variety of corporate purposes, a legal rule that sanctions deep price cutting so long as a consistent, previously established accounting system shows that sales remained above cost, provides a powerful incentive for firms to shape future pricing behavior by adopting such procedures

¹⁴¹ In *Transamerica Computer Co.*, the court found that the seemingly ample 20% price over cost margin was only slightly above the dominant firm's minimum internal benchmark return after an allowance for capital return was made. 481 F. Supp. at 1000. Presumably, a minimum internal benchmark return on capital sets the floor below which it is more profitable for the firm to invest capital externally than internally, thus providing a rough measure of the imputed cost of capital.

¹⁴² Fixed costs, for example, include costs for plant and machine tools. Average total cost is the sum of average fixed costs and average variable costs.

¹⁴³ See *California Computer Prods., Inc. v. IBM Corp.*, 613 F.2d at 704 n.19; *Transamerica Computer Co. v. IBM Corp.*, 481 F. Supp. at 998-99.

long before possible litigation.¹⁴⁴ It is even more difficult to undermine this strategy in light of recent decisions that held intent irrelevant in the absence of pricing below the relevant cost standard.¹⁴⁵ Thus, the plaintiff could argue that only close scrutiny of established accounting procedures can prevent predatory pricing activities by the far sighted firm.

An even stronger argument for plaintiff is that replacement cost, rather than historic accounting cost, provides the proper measure of economic cost in inflationary times.¹⁴⁶ A replacement cost standard will create administrative difficulties because the relevant costs are not simply ascertained from a firm's accounting statement.¹⁴⁷ When a legal rule rests essentially on economic theory, however, there are limits to the amount of deviation from correct theory that can be tolerated without undermining the fundamental rationale for the rule.¹⁴⁸ Neglect of replacement cost in a high fixed cost industry would clearly exceed such limits when the legal standard is average total cost.

Attacking the Dominant Firm's Pricing as Unfair. On first consideration, it is questionable whether fairness is a proper concern in the economic analysis of predatory pricing. Indeed, Areeda and Turner have dismissed fairness as an "unruly element."¹⁴⁹ Equity, however, is not an unknown concept in economic

¹⁴⁴ Each predatory pricing rule gives rise to pre-entry price, output, and investment adjustments on the part of dominant firms whose markets are subject to encroachment. To neglect the incentives of rules whereby dominant firms make *pre-entry adaptive responses of a strategic kind* necessarily misses an important part of the problem.

Williamson, *supra* note 48, at 293 (emphasis in original) (footnote omitted). See also Joskow & Klevorick, *supra* note 50, at 252 n.79 (courts utilizing average total cost test must guard against creative accounting).

¹⁴⁵ See *Transamerica Computer Co. v. IBM Corp.*, 481 F. Supp. at 990. See also R. Posner, *supra* note II, at 189-90; Williamson, *supra* note 48, at 287-88.

¹⁴⁶ See 1 A. KAHN, *THE ECONOMICS OF REGULATION* 115-16 (1970). See also SEC Regulation S-X, rule 3-17, 17 C.F.R. § 210.3-17 (1980) (firms required to state earnings on replacement cost basis for SEC accounting reports).

¹⁴⁷ Historic cost is also unascertainable simply from the accounting statement of a diversified, multi-market firm. See note 119 *supra*. Replacement cost, however, adds another difficult dimension to this problem by requiring estimates of current and future costs. See generally Areeda & Turner, *supra* note 62, at 1351-52. Perhaps the simplest approach is the concept of "trended original cost" which is used in utility pricing. Trended original cost ascertains replacement cost by adding an inflation factor to depreciated original cost. See R. CAYWOOD, *ELECTRIC UTILITY RATE ECONOMICS* 176 (1972).

¹⁴⁸ Thus, Posner has structured his proposed predatory pricing rule so that long run marginal cost (replacement cost) is substituted for average accounting cost (historic cost) whenever replacement cost exceeds historic cost. R. POSNER, *supra* note II, at 190-91.

¹⁴⁹ See generally 3 P. AREEDA & D. TURNER, *supra* note 18, ¶ 711c.

theory;¹⁵⁰ economic writers, such as Baumol, Joskow and Klevorick, and Williamson¹⁵¹ justify their predatory rules on grounds of fairness as well as efficiency. Moreover, one or more courts have considered fairness to be a relevant factor when examining predatory intent.¹⁵² Although there is no exact or accepted definition of this concept in the predatory pricing context, the basic notion of fairness can be roughly formulated as follows: fairness in pricing requires the protection of new entrants and smaller firms in their justifiable reliance on the dominant firm's preexisting pricing policies. The key word in this formulation is, of course, "justifiable." The dominant firm cannot be expected to hold a price umbrella above new entrants and smaller firms. The economic rationale for this rule is to provide a stable economic environment that reduces the risk of market entry by protecting the entrant against price retaliation that it could not reasonably have anticipated. Protecting the entrant against price retaliation not only protects existing entry investment, but also stimulates new investment. In addition, the rule creates an incentive for permanent low pricing by dominant firms that desire to deter or limit entry as post-entry retaliation is constrained.

No single proposed rule explicitly embodies fairness as a pricing concern. Williamson would prohibit the dominant firm from increasing output for an eighteen month period following entry. Baumol's proposed rule would prohibit the dominant firm from reducing its price below a level that it is willing to sustain on a long term basis. Professor Scherer would incorporate fairness considerations in his rule-of-reason by allowing a court to place considerable weight on the intent that motivated a price reduction. Still another approach is developed from the "meeting com-

¹⁵⁰ See generally Elzinga, *The Goals of Antitrust: Other Than Competition and Efficiency, What Else Counts?*, 125 U. PA. L. REV. 1191, 1192-93 & nn.6-8 (1977).

¹⁵¹ See Baumol, *supra* note 74, at 26; Joskow & Klevorick, *supra* note 50, at 22; Williamson, *supra* note 48, at 337-40.

¹⁵² See *Transamerica Computer Co. v. IBM Corp.*, 481 F. Supp. at 1010; *cf. Barry Wright Corp. v. ITT Grinnell Corp.*, No. 78-485-S, slip op. at 17 (D. Mass., Feb. 26, 1981) (court cited examples of unfair conduct in upholding predatory pricing allegations). See also *Richter Concrete Corp. v. Hilltop Basic Resources, Inc.*, 5 TRADE REG. REP. (CCH) ¶ 63,947, at 75,886-87 (S.D. Ohio April 7, 1981) (quoting with approval *Transamerica Computer's* critique of marginal cost pricing rule as "'contradicted by the economic, political, and social policies of the Sherman Act.'"); *ILC Peripherals Leasing Corp. v. IBM Corp.*, 458 F. Supp. at 433-34 (fairness may explain court's holding that dominant firm's below cost price is lawful when not below level necessary to "meet competition" of smaller firms); NATIONAL COMMISSION FOR THE REVIEW OF ANTITRUST LAWS AND PROCEDURES, REPORT TO THE PRESIDENT AND THE ATTORNEY GENERAL 150 (predatory intent by firm with market power may violate Sherman Act even when price exceeds relevant cost).

petition defense" under the Robinson-Patman Act,¹⁵³ and recognized, to some extent, by one court in a decision under Case 2 type facts.¹⁵⁴ Under this approach the dominant firm could meet, but not undercut, the entrant's price. A meeting competition defense represents the maximum expression of the fairness value because it protects the entrant's reliance on clearly ascertainable facts. Thus, the potential entrant is assured that after it decides to enter the market, on the basis of the pre-entry price and its own costs, the dominant firm will not undercut the prevailing pre-entry price except to the extent necessary to meet the entrant's own price competition. The meeting competition defense, like the Williamson and Baumol rules, permits the dominant firm to maintain low prices to deter entry, but limits the post-entry price response.

Plaintiff could not easily make a fairness argument, however, under the facts of Case 2. The dominant firm in Case 2 did nothing more than meet the lower prices of the entrants. Nevertheless, plaintiff could argue that there was a normal differential between the dominant firm's price and the entrant's price based on consumer brand loyalty; thus, a price that met or closely approached the plaintiff's price would, in effect, undercut that price.¹⁵⁵ This argument appears implausible, however, in a market characterized by sophisticated buyers.

d. *Summary.* On the surface, it appears that the dominant firm's price was not predatory in Case 2 because its price remained well above average total cost, the entrants' prices were not undercut by the dominant firm, and the entrants did not leave the market. Although the dominant firm's accounting practices may raise suspicions, they were based on established procedures that it consistently followed. Deeper analysis of the facts under varying assumptions, however, revealed that the non-predation

¹⁵³ Section 2(b) of the Clayton Act, as amended by the Robinson-Patman Act, 15 U.S.C. § 13(b) (1976), provides that a price reduction made in good faith to meet a competitor's equally low price is an absolute defense to a price discrimination charge under that section. See *Standard Oil Co. v. FTC*, 340 U.S. 231, 240-51 (1951).

¹⁵⁴ See *ILC Peripherals Leasing Corp. v. IBM Corp.*, 458 F. Supp. at 433-34 (price, above meeting competition level held lawful irrespective of cost). See also *Richter Concrete Corp. v. Hilltop Basic Resources, Inc.*, 5 TRADE REG. REP. (CCH) ¶ 63,947, at 75,889 (S.D. Ohio April 7, 1981) (citing *ILC Peripherals* with approval).

¹⁵⁵ This has been recognized in cases under the Robinson-Patman Act. See *Calloway Mills Corp. v. FTC*, 362 F.2d 435, 441 (5th Cir. 1966). See also *Borden, Inc.*, 92 F.T.C. 669 [1976-1979 Transfer Binder] TRADE REG. REP. (CCH) ¶ 21,490, at 21,505-08; *id.* at 828 [1976-1979 Transfer Binder] TRADE REG. REP. (CCH) ¶ 21,490, at 21,523 (Pitofsky, Comm'r, concurring).

conclusion hinged on an assumed relationship between marginal and average total cost that does not exist at higher output levels. The analysis also revealed several ways in which plaintiffs might challenge seemingly secure cost findings under plausible economic theories. Finally, the potential usefulness of a fairness standard increased as the cost-based analysis became less secure. The facts of Case 2, however, did not support a substantial fairness argument because the dominant firm did no more than meet the low prices previously established by the plaintiffs.

C. Future Trends and Developments

The legal and economic theory of predatory pricing is still evolving. The preceding discussion is proof—perhaps too vivid—that judges and lawyers, as well as economists, confront a rich array of alternative economic theories and legal rules. Certain themes nonetheless emerge and provide a framework for assessing future trends and developments in predatory pricing law.

1. Economic Theories

No single economic theory dominates predatory pricing analysis; instead, several theories vie for attention, and more theories are currently on the drawing board.¹⁵⁶ Although the economic theories differ widely in their underlying assumptions and behavioral outcomes, some generally accepted conclusions emerge.

First, predatory pricing can be profitable under favorable conditions. These conditions include: (1) differentially higher entry barriers for firms other than the entrant, which will reduce probability of entry by outside firms after the entrant is forced to leave the market; (2) initially high production costs for the entrant, even though the entrant's costs will eventually decrease if it survives because of "learning curve" effects; (3) diversification by the dominant firm into several geographic markets so that a predatory pricing policy in one market will deter entrants in other markets; (4) long lead time and risks in market entry such that later entrants are deterred by the predation practiced against ear-

¹⁵⁶ See Gilbert, Patents, Sleeping Patents, and Entry Deterrence; Hurwitz, Kovacic, Sheehan & Lande, Current Legal Standards of Predation, § III, app. § C; Ordover & Willig, The Economic Definition of Predation (unpublished papers, presented at FTC Staff Seminar on Antitrust Analysis, 1980).

lier entrants; and (5) production cost characteristics that allow the entrant to produce at a cost level approximating the dominant firm's costs only if the entrant builds a large scale plant.

Second, it follows from the preceding conclusions that a simple pricing rule cannot prevent all possible instances of predatory pricing. Under any of the above enumerated conditions, the entrant could appear "less efficient" than an existing firm under a cost-based rule, but predatory pricing could nevertheless cause adverse economic consequences.

Third, a predatory pricing rule could impose serious costs if it discouraged socially desirable price reductions, either by forbidding harmless price reductions, or because of enforcement imperfections. Risk averse firms in particular might avoid legitimate pricing strategies out of fear of prosecution or litigation. Courts concerned with the possibility of overbreadth may more closely scrutinize the structural characteristics of a market, including entry barriers, to insure that a rule does not discourage low prices when unrestrained monopoly pricing is unlikely.¹⁵⁷

Fourth, in light of these factors, economic commentators are beginning to recognize that the choice among alternative rules should be based on a rough cost-benefit analysis because there is, thus far at least, no ideal predatory pricing rule.¹⁵⁸ In practice, such an analysis must resolve two important issues: (1) whether predatory pricing behavior is likely to occur to some degree in the absence of any predatory pricing prohibition; and (2) which rule or rules are most cost effective in minimizing the sum of the two costs of error—error from undeterred predation (under-inclusion) and error from overzealous prosecution and deterrence (over-inclusion). The courts that have been forced to choose an appropriate rule in a particular predatory pricing case seemingly viewed the issue as an all or nothing choice between rules of general application. Professor Schmalensee argues, however, that the choice of economic theories depends on the specific facts of each case because the theories are only partial, rather than global, descriptions of predatory pricing behavior.¹⁵⁹ Unfortunately, there is no economic consensus as to whether a global or a local approach should form the basis on which such choice is to be made among competing theories.

¹⁵⁷ See Joskow & Klevorick, *supra* note 50, at 265-69.

¹⁵⁸ *Id.* at 218.

¹⁵⁹ See Schmalensee, *supra* note 75, at 1043.

2. *Judicial Applications*

Each economic theory of predation confronts major technical difficulties and complexities when applied to specific facts. The courts did not at first realize the unsettled state of predatory pricing as an economic theory, and perhaps did not fully anticipate the difficulties of proving economic concepts such as cost or demand. Nonetheless, several courts substantially adopted a marginal cost pricing rule after Areeda and Turner published their pathbreaking article in 1975. As it became clear that economic consensus did not support use of marginal cost as the exclusive test for predation, and that legal application of the rule was cumbersome, several courts retreated. Many judges probably now realize that there is no simple economic rule for predatory pricing that can eliminate perplexing conceptual and practical difficulties. Consequently, the situation in the courts parallels that in economic theory in that a single legal standard for determining predation has not yet emerged. Instead, the courts have used at least four distinct legal standards: marginal cost, the high entry barriers exception, marginal-cost-plus-other-factors, and average total cost. Moreover, the legal and economic content of these standards is not fixed. The courts have given litigants wide latitude to develop the issues, particularly under the marginal-cost-plus and average total cost standards.

The Supreme Court may possibly narrow the scope of predatory pricing analysis by adopting a single pricing standard, but such a development does not appear imminent. Regrettably, the present state of economic theory has yet to produce a test that is both comprehensive in its policy objectives (by promoting competition and economic welfare over the short and long run), and administratively feasible over the range of probable applications.

Thus, predatory pricing conduct remains subject to a rule-of-reason type analysis amplified by the divergent economic theories of predation. With several economic theories vying for acceptance, the inquiry is scarcely simple. Possibly the analysis could be conducted as a two step inquiry. The first step would involve examining the alleged predatory pricing conduct under the various existing economic tests for predation, as illustrated by the preceding analysis of two model cases. The first step inquiry would be dispositive when either the various economic tests point uniformly or overwhelmingly in one direction, or when one economic test emerges as factually most appropriate.¹⁶⁰ When the first step in-

¹⁶⁰ *Id.* Factual dominance, however, will be difficult to sustain in contested litigation.

quiry fails to produce a clear result, courts could then undertake a second step analysis by evaluating the pricing conduct under a more extensive balancing approach. This second step analysis requires courts to balance the anticompetitive and output-restrictive consequences of the alleged predatory conduct against the potential competitive and output-increasing effects generated by the challenged activity.¹⁶¹

This approach may appear responsive to the present state of economic knowledge and the current legal development in predatory pricing. It must strike the objective observer, however, as an elaborate—and expensive—procedure for regulating business conduct that is thought to occur only infrequently. If the motivation behind Areeda and Turner's original proposal was to simplify the law, that result has surely escaped realization. These concerns raise more fundamental questions about the wisdom of the judicial development of predatory pricing policy since 1975.

III

CONCLUDING REFLECTIONS ON THE PREDATORY PRICING EXPERIENCE AND THE JUDICIAL USE OF ECONOMIC THEORY

Prior to 1975, predatory pricing was a loosely structured, somewhat opaque area of law in which the generality of the legal standard left room for the exercise of judicial discretion. The legal decisions, which failed to reflect a systematic use of economic theory, were at least partially influenced by the perceived fairness or unfairness of the dominant firm's pricing policies and similar broad ranging considerations. In 1975, this amorphous legal doctrine was confronted by a well conceived economic theory joined to a proposed rule of law. Anchored squarely on the economic theory of the firm, expounded through standard economic diagrams, and exhibiting a sharp awareness of the constraints of the legal process, the Areeda-Turner proposal presented a beguilingly

¹⁶¹ This approach is illustrated in *E.I. duPont de Nemours & Co., — F.T.C. —*, 3 TRADE REG. REP. (CCH) ¶ 21,770, at 21,980-81 (Oct. 20, 1980). The issue in *duPont* was whether investment and pricing conduct strategically related to achieving a dominant position in the manufacture of titanium dioxide constituted predation. In holding that neither the investment nor the pricing behavior was predatory, the Commission used a multiple test approach that involved inquiries under the Scherer, Williamson, and Joskow and Klevorick rules. The conduct was lawful under each test, and that uniform result appeared to be dispositive. The Commission clearly indicated, however, that if the analysis under the predatory pricing rules lacked conclusiveness and fell into "gray areas," it would inquire into the overall competitive effect of the predatory practices under a full "balancing approach." *Id.* at 21,982.

simple legal standard: short run marginal cost pricing. This standard simultaneously offered the axiomatic certainty of scientifically deduced truth, and the administrative advantage of a drastically simplified legal rule.

The adoption of a marginal cost pricing rule by several courts profoundly affected subsequent predatory pricing decisions. As the objective standard of marginal cost came to dominate courtroom proceedings, the range of judicial discretion was severely confined. When the plaintiff failed to meet the demanding requirements of the marginal cost standard, the verdict could be directed for the defendant. Moreover, consistent litigation losses by plaintiffs demonstrated that for all practical purposes a predatory pricing plaintiff could not meet the standard imposed by the marginal cost rule. A short, but essentially accurate, description of the marginal cost pricing standard is that it holds dominant firm pricing *per se* legal.

Reviewing the course of predatory pricing development with the advantage of hindsight, many would conclude that the early judicial response was premature. The extension of economic theory on which the marginal cost pricing rule was based, although well conceived, did not reflect an economic consensus. In addition, the legal rule itself proved to be more complex than suggested by its surface simplicity. Faced with these developments, several courts retreated from their initially strong support of the marginal cost rule, but not before the balance of litigation advantage had shifted drastically in favor of the defendants. Such a shift can be justified, and perhaps a rule of *per se* legality can be defended, if predatory pricing is indeed a rare occurrence, as suggested by some economic writers. More recent economic literature, however, fails to demonstrate a consensus justifying the dismissal of predatory pricing as economically irrational behavior. Empirical evidence adduced from several trial records suggested, but did not conclusively demonstrate, that predatory pricing occurred infrequently. In any event, the courts did not purport to adopt the marginal cost pricing rule as a device for eliminating the predatory pricing offense and establishing the *per se* legality of dominant firm pricing. On the contrary, they adopted the rule without explicitly considering the drastic effect it would have on legal decisions.¹⁶² Thus, the predatory pricing experience raises a

¹⁶² It might be implied that in adopting the Areeda-Turner rule, the courts accepted Areeda and Turner's premise that predation is rare, *see* note 38 *supra*, but courts did not make any such assumption explicit.

more fundamental issue concerning the process by which courts create legal policy from economic or other scientific theory.

The recent history of predatory pricing indeed can be seen as a case study of the impact of economic theory on the courts. In particular, it raises questions, bound to become more pressing in a scientific age, of how courts should use new developments in economic or scientific theory. Because this Article is based on a limited observation, drawn from a single field, the issues are raised and left in the form of questions.

First, is it appropriate for courts to base their choice of a legal rule on a well-conceived economic or other scientific theory even though it does not reflect a consensus view within the economic or scientific community? Second, if selection of a single theory under these conditions is improper, how should courts choose between competing theories, and how should courts ascertain the existence of consensus when evaluation of proposed theories may take years, and when even brilliantly conceived theories may ultimately be rejected by the scientific community? Third, do situations arise when even a theoretical consensus is an insufficient basis for legal policy in the absence of empirical verification of the theory's predictions? This is especially important for economic policy because many economic theories lack empirical validation. Fourth, in using economic theory and drawing policy implications from economic models, how can courts avoid the omission of unarticulated vital elements embedded in previous judicial experience? In the predatory pricing cases, for example, should the courts have explicitly considered the effects of omitting non-cost elements such as market structure or fairness considerations? Fifth, when, as in the case of the marginal cost rule, the insights from economic theory appear to require a reordering of legal doctrine, should the courts also carefully assess the behavior likely to arise under the revised legal doctrine? Finally, do not all of the preceding considerations suggest a renewed emphasis on the values and insights inlaid in long-standing judicial experience, built upon case-by-case adjudication, and on the advantage of incremental policy change, achieved gradually and with opportunity for self-correction?¹⁶³

¹⁶³ The process by which scientific theory gradually evolves may provide a useful model for courts. Professor Stigler observes:

A new idea does not come forth in its mature scientific form. It contains logical ambiguities or errors; the evidence on which it rests is incomplete or indecisive; and its domain of applicability is exaggerated in certain directions and overlooked in others. These deficiencies are gradually diminished by a peculiar sci-

*Appendix A**The Scherer Model*

The Scherer model is a testing model for the Areeda-Turner and other cost-based rules. It is not used to develop an alternative rule, but rather it is designed to reveal the defects of cost-based rules. Nevertheless, the Scherer model is an important contribution because it challenges the use of a marginal cost or other cost standard as even a presumptive indication of the absence of predation. Courts often cite Scherer's critique of the Areeda-Turner rule and thus, litigants should understand the basic arguments.

Scherer's model demonstrates in the marginal cost rule a fundamental deficiency that arises when a dominant firm utilizes a limit pricing strategy prior to entry. The marginal cost rule's deficiency is that the strategy will succeed, unless the predatory pricing rule is applied so that desirable as well as undesirable pricing behavior is deterred.

In contemplating an entry decision, the future entrant's primary concern is what profit it will earn *if and when* it enters the market. Along with its own costs, the entrant's profit is affected by the price that will prevail after entry. Scherer's model assumes that to avoid diseconomies of small size, an entrant must enter on a fairly large scale. If the entrant plans to enter the industry with a large plant because of production economies, but the dominant firm maintains its existing pre-entry output, price must fall. This conclusion is obvious because unless the dominant firm reduces its output, the entrant's output, when added to the dominant firm's, can only clear the market at a significantly lower price. The *pre-entry* price could be quite profitable for the monopolist but the *post-entry* price anticipated by the entrant might be below the entrant's marginal and average costs—even if the entrant is equally efficient. Thus, the dominant firm that strategically chooses the appropriate pre-entry output level and price, and subsequently

entific aging process, which consists of having the theory "worked over" from many directions by many men. This process of scientific fermentation can be speeded up, and it has speeded up in the modern age of innumerable economists. But even today it takes a considerable amount of time, and when the rate of output of original work gets too large, theories are not properly aged. They are rejected without extracting their residue of truth, or they are accepted before their content is tidied up and their range of applicability ascertained with tolerable correctness. A cumulative slovenliness results, and is not likely to be eliminated until a more quiescent period allows a full resumption of the aging process.

G. STIGLER, *ESSAYS IN THE HISTORY OF ECONOMICS* 14 (1965) (quoted in D. DEWEY, *THE THEORY OF IMPERFECT COMPETITION* 22-23 (1969)).

demonstrates its intent to maintain that output level, can discourage entry by an equally efficient rival while enjoying substantial short run monopoly profits.

The problem of large scale entry in relation to post-entry price is illustrated in Scherer's key diagram, set forth in Figure 8.¹⁶⁴ Industry demand, marginal revenue, and marginal and average cost curves are appropriately labeled. Unlike other diagrams used in the Article, Figure 8 contains a numerical scale; thus, the short run profit maximizing price is \$17, and corresponding output is 100 units. The monopolist's average cost at this profit-maximizing point reaches its lowest level of \$10. For clarity of presentation, several important relationships in Figure 8 are set forth in Table A under various entry conditions.

TABLE A

Output			ATC	SMC	
Market Total	Dominant Firm	New Entrant	Dominant Firm	Dominant Firm	Market Price
100	100	0	\$10	\$10	\$17
130	130	0	10+	14.90	14.90
180	100	80*	10	10	11.40
210	130	80*	10+	14.90	9.30

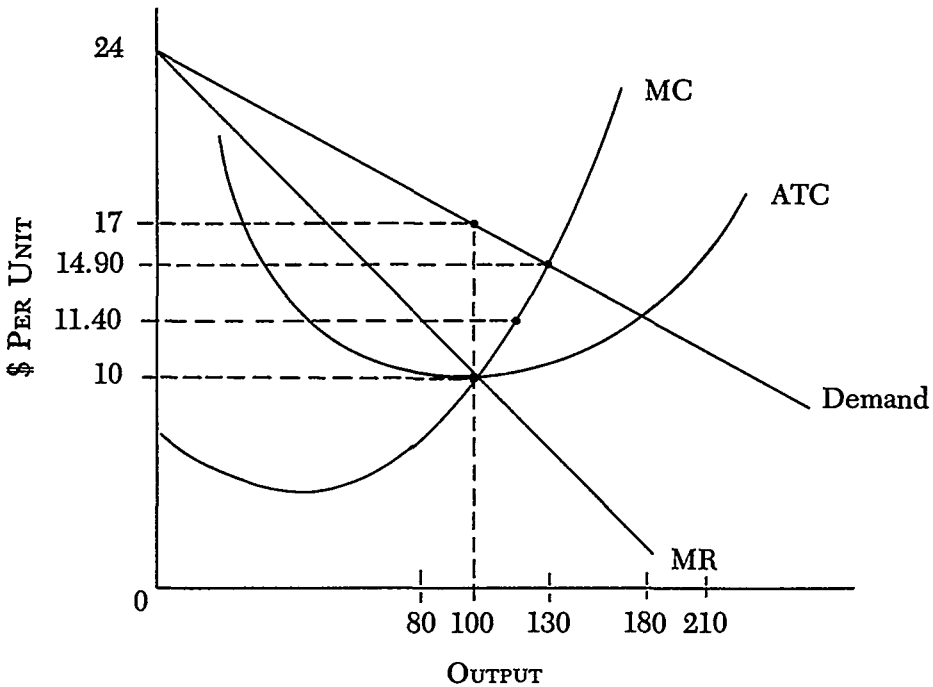
*Average total cost for the new entrant at 80 units is \$10.

It is assumed that the entrant is as efficient as the monopolist and consequently there is some level of output for the entrant at which its average total cost equals the monopolist's minimum ATC at \$10. More specifically, it is also assumed that the entrant's average total cost reaches the minimum point at 80 units. If the monopolist produces at its short run profit-maximizing output of 100 units and the entrant begins production with an efficient plant producing 80 units, both firms would make a profit. Table A lists \$11.40 as the market price for the expanded output of 180 units, a market price which exceeds the firm's \$10 average cost by \$1.40.

The dominant firm could attempt to force the entrant out of the market by expanding output following entry to 130 units. This increased output, assuming that the entrant's output is 80

¹⁶⁴ See F. SCHERER, *supra* note 1, at 232-52.

FIGURE 8
Scherer Model



units, will force price to drop below \$10—a price at which both firms lose money. If the dominant firm has a deep pocket and if it can effectively threaten that it will continue to absorb losses, the entrant may be forced out of the market. Expanding output to lower prices, however, constitutes a classical case of predation dressed up with non-linear cost curves. It is illegal under the classical test and, of course, under the Areeda-Turner rule because the dominant firm's average and marginal costs both exceed price at a total industry output of 210 units.¹⁶⁵

Scherer, however, is concerned with a more subtle strategy. Suppose the dominant firm, anticipating the possibility of entry, sets its *pre-entry* output at 130 with a market price of \$14.90. This price-output combination violates neither the classical test nor the

¹⁶⁵ See Table A (bottom line), *supra* p. 796.

Areeda-Turner rule because this price exceeds average total cost and equals marginal cost. But *if the entrant believes* that the dominant firm will maintain this level of output after entry, it will realize that the market price must then fall below the \$10 cost level, and at that price the entrant will lose money.¹⁶⁶ Hence, the dominant firm has successfully deterred entry without engaging in predation because the entrant will not enter the market.¹⁶⁷ If this is a realistic scenario, a serious policy problem exists that is ignored by both the Areeda-Turner rule and the classical tests: an *equally efficient* entrant is deterred from entering the market.

The standard response to this analysis, and the answer that Areeda and Turner offer, is that a cost-based predatory pricing rule prevents the dominant firm from effectuating its output maintenance threat. If the dominant firm responds to entry by lowering price in order to maintain its artificially high output level, price would then drop below its costs, both average and marginal, thus violating the cost-based rules. Entry is not deterred because the entrant will realize that the dominant firm cannot lawfully maintain the artificial pre-entry output. Thus, the Areeda-Turner rule actually forces the dominant firm to "move over" for the entrant by reducing output so that its price does not drop below average total cost.¹⁶⁸

Several exchanges between Areeda and Turner and Scherer have raised many detailed, sometimes technical, arguments. For example, Areeda and Turner agree with Scherer that, assuming the uncertainty of future demand and costs, it is unlikely that the strategic calculus they hypothesized to counter the effects of limit pricing will favor entry. They dispute, without citing any empirical evidence, whether exclusionary pre-entry output expansion is likely to occur frequently.¹⁶⁹

¹⁶⁶ The entrant's output of 80 units plus the dominant firm's output of 130 produces a price of \$9.30. See Table A, *supra* p. 796.

¹⁶⁷ The deterrence is not costless to the dominant firm because it must forgo the shortrun profit maximizing price of \$17 so long as there is a threat of entry. But it still does well at a price of \$14.90. Thus, the price is a "limit price," but, in contrast to the simple limit pricing models that do not allow for scale economies, the limit price is well above the price that would prevail under competition.

¹⁶⁸ See 3 P. AREEDA & D. TURNER, *supra* note 18, ¶ 715b(a). At least one recent decision attaches some significance to whether the smaller firm or the dominant firm started the price cutting. See *California Computer Prods., Inc. v. IBM Corp.*, 613 F.2d at 741-42 (finding that dominant firm's price cutting merely responded to competitor's lower prices).

¹⁶⁹ The frequency or infrequency of the pre-entry output expansion strategy beyond optimal output scale depends upon the credibility of the dominant firm's implied threat to maintain this output after entry even though price would fall below cost. This issue can be approached by asking whether such a threat is credible in the absence of any legal con-

The most important objection, however, is that a cost-based rule could require the dominant firm to reduce output after entry.¹⁷⁰ A rule requiring output reduction following entry could deter non-predatory dominant firm output expansion unless deliberately predatory expansions were effectively distinguished from non-predatory expansions.¹⁷¹ Moreover, the application of any rule involves some slippage, and the cost-based rule requiring an output reduction is no different because it provides no incentive to the dominant firm to charge less than the short-run monopoly price, even in non-predatory instances,¹⁷² if it must abandon newly won customers after another firm enters the market. For these reasons, Scherer concludes that a predatory pricing standard based on cost alone is undesirable and that a more complex rule is required.

The Scherer model thus illustrates the problems that may arise under the Areeda-Turner and other cost-based rules when the scale required for efficient entry is large enough to cause a post-entry reduction in the market price. His limit pricing theory hypothesizes that firms may set their pre-entry level of output so high that price will fall below the entrant's and the monopolist's costs if output is maintained after entry. If the threat by the

straints. A threat is not credible, for example, if the dominant firm's plant is optimally designed to produce 100 units rather than 130 because the dominant firm will not incur higher costs if it "backs off" to 100 units, a level which provides ample room for a new entrant while allowing the dominant firm to earn above normal profits. On the other hand, there are probably some one-time costs, such as getting used to a higher level of production and establishing customer contacts involved in increasing output and sales so that it is cheaper for the firm to keep output at 130 once it reaches that level rather than expanding output at the time of entry (This logic would also apply to the entrant's similar investments.). The authors of this Article conclude that there is a "weak" degree of credibility inherent in a limit pricing strategy that could be expanded by creating a disadvantage for the monopolist which decreases output to 100 units after entry. The prospect of deliberately "building in" such disadvantages is the subject of some recent literature on predation and limit pricing. See text accompanying notes 170-72 *infra*. See generally Salop, *Strategic Entry Deterrence*, 69 AM. ECON. REV. 335 (1979).

¹⁷⁰ The possible output reduction is even greater under a suggested modification of the rule by Areeda and Turner that would treat a price above average cost as only presumptively valid, subject to rebuttal by facts demonstrating that price was "substantially below" marginal cost. See 3 P. AREEDA & D. TURNER, *supra* note 18, ¶ 715b2. This modification, when applicable, would raise the price floor for the dominant firm's post-entry price, thus increasing potential output reduction.

¹⁷¹ Scherer draws the distinction between a permanent policy of pricing at low margins (nonpredatory) and price reductions instituted in anticipation of entry by a specific firm (predatory). See Scherer, *supra* note 45, at 880-82.

¹⁷² Firms often decide to reduce prices for various reasons, such as making the product more competitive with substitute products. See M. PECK, *COMPETITION IN THE ALUMINUM INDUSTRY* 58 n.47 (1961) (reducing aluminum price to increase substitution of aluminum for other markets).

dominant firm to maintain output is credible, even an equally efficient entrant may be deterred from entry. However, if the threat is actually carried out, the dominant firm's price will drop below the Areeda-Turner cost floor. Because this would subject the dominant firm to antitrust liability under the Areeda-Turner rule, there is serious doubt that such a threat would be credible to the entrant. Under these circumstances, Scherer's concerns do not appear to create a serious problem with respect to the *under-deterrence* of predatory pricing. The more serious risk, raised by Scherer, is that a cost-based rule would lead to *over-deterrence* by inhibiting a dominant firm's nonpredatory pricing and beneficial output expansion.

Appendix B

The Williamson Model

The Williamson model is designed to demonstrate that a dominant firm constrained only by the Areeda-Turner marginal cost rule can act strategically to select a plant size that precludes entry by an equally efficient firm.¹⁷³ Figure 9, *infra*, will help illustrate the model.

The Williamson model contains several assumptions. First, the dominant firm must produce at a fairly high output level to reach minimum optimal scale (Q_{\min}). Second, the entrant has access to the same technology (*i.e.*, similar cost curves) as the dominant firm; thus, the entrant's minimum optimal scale is also at Q_{\min} . Third, the entrant can enter at any scale that it finds profitable. Fourth, the Areeda-Turner criterion—price covers marginal cost—must be satisfied at all times. Finally, the entrant expects the dominant firm to expand output after entry to the fullest extent possible without violating the Areeda-Turner rule.

With these assumptions, Williamson illustrates in Figure 9 how the dominant firm strategically uses its choice of plant size to prevent entry. The firm builds a plant that reaches maximum efficiency at output Q_m , as shown by the relevant short-run average (SRAC) and marginal cost (SRMC) curves which appear in Figure 9. The plant is larger than necessary because an optimal size plant in the absence of an entry threat corresponds with output Q^* .¹⁷⁴ The larger output Q_m , however, creates a dilemma for the entrant—enter the market with either too great an output

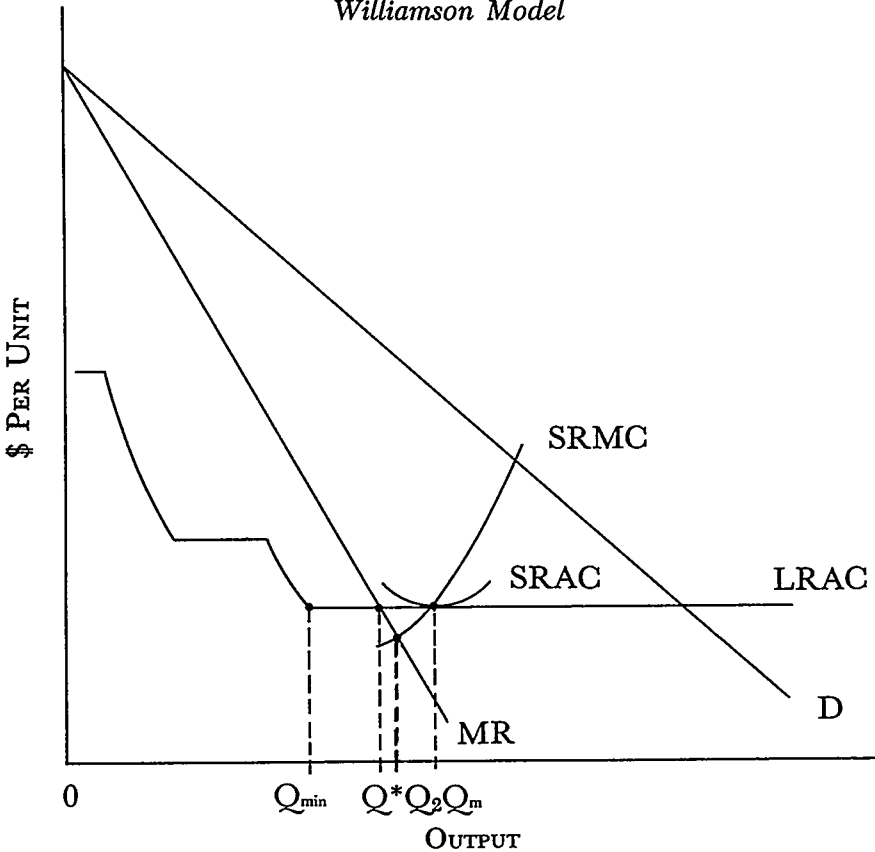
¹⁷³ See Williamson, *supra* note 48, at 299-306; text accompanying notes 57-62, 67-69 *supra*.

¹⁷⁴ See Figure 2 *supra*.

or a smaller inefficient plant. The dilemma is illustrated with respect to Figure 9 as follows:

1. Entrant enters the market with an efficient plant reaching minimum cost at output Q_{\min} . The dominant firm expands output to Q_m . The total output, Q_{\min} plus Q_m , forces the market price below both the entrant's and the dominant firm's average cost. It is assumed, notwithstanding the Areeda-Turner rule, that the dominant firm is not required to reduce output below Q_m (the optimal level for this plant size) to "make room for" the entrant.¹⁷⁵

FIGURE 9
Williamson Model



¹⁷⁵ See notes 166-70 and accompanying text *supra*.

2. Entrant chooses a less efficient output level below output Q_{\min} . In this situation, however, the dominant firm can easily force the market price below the entrant's average cost which is now above the costs associated with Q_{\min} , by expanding output beyond Q^* . The dominant firm's output expansion does not violate the Areeda-Turner rule because price is always above the dominant firm's marginal cost.

This analysis demonstrates that there is no profitable output level and corresponding plant size for the entrant and thus it will decline to enter. At the same time, the dominant firm is allowed to operate its plant at the short run profit-maximizing level (Q_2) in Figure 9. Because output Q_2 exceeds the no-entry profit maximizing output Q^* , consumers gain some advantages from the limit-price strategy employed by the dominant firm, although they could gain more if the monopolist had not behaved strategically and entry had taken place. Thus, the Williamson model illustrates how a dominant firm can strategically choose a plant size that allows it to respond to new entry by expanding output and driving down the price while fully complying with the marginal cost pricing rule.

Williamson acknowledges that neither the marginal cost pricing rule nor any other predatory pricing rule will prevent dominant firms from pursuing strategies to deter competitive entry. He argues, however, that his rule limiting post-entry output expansion would provide greater consumer benefits than the Areeda-Turner rule. The Areeda-Turner rule allows a firm to deter entry by maintaining wasteful excess capacity without necessarily increasing output, whereas the Williamson rule compels the dominant firm to increase output *prior* to entry if the firm intends to follow an entry deterrent strategy.

Two further observations regarding the Williamson model and its critique of the Areeda-Turner rule are in order. First, it is uncertain whether the behavior described by Williamson makes sense for the monopolist from a long run profit-maximization standpoint. The credibility of the Williamson rule's deterrent effect requires that a firm build an extra-large plant before the entrant is ready to produce. Because of the uncertainty surrounding the entrant's plans and the time needed to construct or expand an existing plant, the dominant firm may be forced to forgo the no-entry profit maximizing output level permanently in anticipation of *possible* future entry. This is a high price to pay for a monopoly.

Second, it is uncertain whether entrants are easily forced out of markets by predatory conduct. This doubt applies not only to the Williamson rules, but to the other rules as well. If the entrant builds a plant, is it likely that it will give up this investment even in the face of a dominant firm's predatory pricing strategy? The entrant has invested in fixed plant and equipment just as the monopolist has. In addition, if the dominant firm must forgo substantial profits to eliminate an entrant, could it also adopt a live-and-let-live policy that the entrant will anticipate? On the other hand, it does not take a very strong assumption of aversion to risk by the entrant to eliminate doubts concerning the entry deterring efficacy of limit pricing.